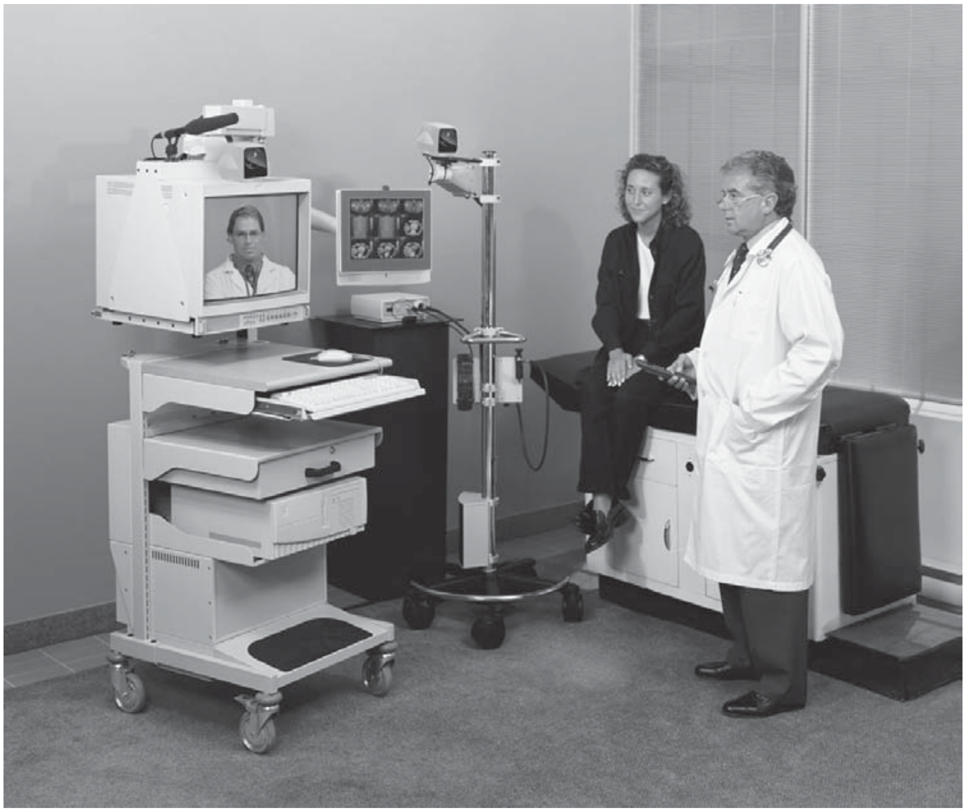
TANDBERG

Health Care System III

User Manual



Sofware Version B4

D50104-15

This document is not to be reproduced in whole or in part
without the permission in writing from:
TANDBERG

CE

Declaration of Conformity

Manufacturer: TANDBERG

United States
1860 Michael Faraday Drive
Suite 250
Reston, VA 20190
Tel: 703 709 4281
Fax: 703 709 4231
Video: 703 437 6991

Authorized Representatives:

Europe & Asia Pacific

Tandberg
Philip Pedersens vei 22
1366 Lysaker, Norway
Tel: +47 67 125 125
Fax: +47 67 125 234
Video: +47 67 117 777

Canada

Tandberg
6505 Trans-Canada Highway.
Suite 610
St. Laurent, Quebec
H4T 1NS 3
Tel: 514 748 5224
Fax: 514 748 1002
Video: 514 744 4792

Device: Telemedicine Teleconferencing System

Models: HCS III and HCS III Mobile

I the undersigned, hereby declare that the medical system specified above conforms with the essential requirements of EC Directive 93/42/EEC.

21 September 1998

Trademarks and Copyright

COPYRIGHT © 2001, TANDBERG
1860 Michael Faraday Drive, Suite 250
Reston, Virginia, USA 20190
Tel: 703-709-4281, Fax: 703-709-4231

All rights reserved. This document contains information that is proprietary to TANDBERG. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form, or by any means, electronically, mechanically, by photocopying, or otherwise, without the prior written permission of TANDBERG.

Nationally and internationally recognized trademarks and tradenames are property of their respective holders and are hereby acknowledged.

Disclaimer
The information in this document is furnished for informational purposes only, is subject to change without prior notice, and should not be construed as a commitment by TANDBERG.

The information in this document is believed to be accurate and reliable, however TANDBERG assumes no responsibility or liability for any errors or inaccuracies that may appear in this document, nor for any infringements of patents or other rights of third parties resulting from its use. No license is granted under any patents or patent rights of TANDBERG.

This document was written by the Applications Department of TANDBERG, USA. We are committed to maintaining a high level of quality in all our documentation. Towards this effort, we welcome your comments and suggestions regarding the content and structure of this document. Please fax or mail your comments and suggestions to the attention of:

Applications Development Department
1860 Michael Faraday Drive
Suite 250
Reston, VA 20190
Tel: 703-709-4281, Fax: 703-709-4231

Environmental Issues
Thank you for buying a product which contributes to a reduction in pollution and thereby helps save the environment.

Our products reduce the need for travel and transport and thereby reduce pollution.
Our products have either none or few consumable parts (Chemicals, toner, gas, paper).
Our products are low energy consuming products.

Battery handling:
Batteries for the Remote Control are Long Life and Alkaline batteries saving the environment, please follow guidelines on the packing material for handling and disposal of the batteries.

Waste handling:
No need to send material back to TANDBERG as there are no consumables to take care of. Please contact your local dealer for information on recycling the product by sending the main parts of the product for disassembly at local electronic waste stations, marking recyclable parts so the waste station can disassemble and re-use these parts.

Production of products:
Our factories employ the most efficient environmental methods for reducing waste and pollution and ensuring the products are recyclable.

Warning

While no currently available technology can completely substitute for the in-person physical examination of an individual patient or specimen, the TANDBERG products provide high quality, high resolution, long distance images. When used properly, these Healthcare products can provide a significant and valuable tool for physicians and other medical professionals who are unable to examine a patient or specimen in person. The use and value of the system will vary depending on the specific circumstances of the patient's condition. Ultimately, judgements on how this tool should be used must be in the individual discretion of physician supervising the patient's care.

For the customers in the USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

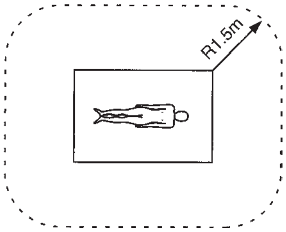
Important safeguards/notices for use in the medical environments

1) All the equipment connected to this system shall be certified according to Standard IEC601-1 or other IEC/ISO/CSA/UL Standards applicable to the equipment.

2) When this system is used together with other equipment in the patient area*, the equipment shall be either powered by an isolation transformer or connected via an additional protective earth terminal to system ground unless it is certified according to Standard IEC601-1 and IEC601-1-1.

Note: The power outlets provided in the system are powered from an isolation transformer.

*Patient Area



Symbols	Location	This Symbol Indicates
	Rear panel of monitor	The equipotential terminal which brings the various parts of a system to the same potential.
	Rear panel of monitor	Functional earth terminal
	Rear panel of monitor and power bar	Attention, consult ACCOMPANYING DOCUMENTS

3) The leakage current could increase when connected to other equipment.

4) The operator should take precautions to avoid touching the rear panel input and output circuitry and the patient at the same time.

5) The main power switch of the system is not easily accessible. To isolate the system from the mains supply remove the mains plug from the wall socket.

Warning on power connection

Use a proper power cord for your local power supply. NEVER USE AN EXTENSION CABLE TO POWER THE SYSTEM.

	United States	Canada	Continental Europe
Plug type	Hospital Grade	Hospital Grade	LP-34A
Female end	E41395	LL33182	LS-60
Cord type	E41395-A	LL76662	H05VV-F
Safety approval	10A/125V	10A/125V	10A/250V
Minimum cord set rating	UL	CSA	VDE

Precautions

On Safety

For your protection, please read these safety instructions completely before operating the equipment and keep this manual for future reference. The information in this summary is intended for persons who operate the equipment as well as repair personnel. Carefully observe all warnings, precautions and instructions on the apparatus, or the one described in the operating instructions and adhere to them. Also for your protection, the instruction manual for the monitor, LCD display (optional), mobile camera (optional) are provided.

Operate the unit on 120 or 240 VAC only, as indicated on the nameplate of the system, which is located on the side of the housing compartment at the bottom of the cart.

Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.

Unplug the system from the wall outlet during lightning storms or if it is not to be used for several days or more.

To disconnect the system main power cord, pull it out by grasping the plug. Never pull the cord itself.

The socket-outlet shall be installed near the equipment and shall be easily accessible.

Be sure to connect the main power cord to a grounded outlet.

Do not use attachments not recommended by the manufacturer, as they may cause hazards.

On Installation

Allow adequate air circulation to prevent internal heat build-up. Do not block any of the ventilation openings of the apparatus.

Do not install the system in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

Route the power cord to avoid it being walked on or pinched by items placed on or against it, paying particular attention to the plug, receptacle, and the point where the cord enters the unit.

On Cleaning

To keep the system looking brand new, periodically clean it with a mild detergent solution. Never use strong solvents such as thinner or benzine, or abrasive cleaners since they will damage the cabinet. As a safety precaution, unplug the system before cleaning it. Never attempt to sterilize this unit. If required to be used in a sterilized environment, use suitable protective covers.

On Repacking

Do not throw away the carton and packing materials. They make an ideal container which to transport the system.

On Mobility

Before moving the system, ensure that the monitor is secured to the table by the attaching clips.

Do not use the monitor handles or any other part of the cart to move it. Use only the identified handles on the table for this purpose.

To prevent impact damage to the LCD display while moving the cart, position the display as close as possible toward the cart.

On Storage

If you need to store the system, ensure that it is stored in a controlled environment* to avoid damage.

*Controlled environment 10 - 40°C (50 - 104°F) 10 - 60% relative humidity

Contents

Declaration of Conformity 2
Warning 4
  For the customers in the USA 4
  Important safeguards/notices for use in the medical environments 4
  Warning on power connection 5
Precautions 5
  On Safety 5
  On Installation 5
  On Cleaning 6
  On Repacking 6
  On Mobility 6
  On Storage 6

Introduction 12

At a Glance — The HCS III System 13
Main HCS III Cart 14
  Camera 14
  Microphone 14
  Monitor 14
  LCD Display 14
  PC (customer supplied) 14
  Keyboard and Mouse (customer supplied) 15
  Cart 15
  Headset and Jack 16
  Rear Interface Panel 16
  Remote Control 16
  Network Terminating Units 16
Mobile Camera Cart (optional) 17
  Camera 17
  Cart 17
  Height Adjustable Camera Arm 17

Installation 19

Precautions 19
Unpacking 19
Connecting the System 20
  Rear Interface Panel 22
  VCR 22
  To connect a video cassette recorder (VCR) 22
  Dual 23
    ISDN BRI Cables 24
    NET 1 External Network Interface 24
    PRI Interface 24
    LAN Cable 24
    Mobile Camera Cart Cable 24
    Microphone 3 (MIC 3) 25
  Installing a PC 25
  Main HCS III Cart Microphone 25
  Ancillary Equipment 26
Cart Adjustments 27
  Triple-pivot Arm Counterbalance Adjustment 27
  Monitor Suspension Arm Adjustment 27
Operational Considerations 28
  Iris Control and Lighting 28
  Brightness Control 28
  Loudspeaker Volume 28
  Background 28
  Guidelines for setting up videoconferencing rooms 29

Getting Started 30

System start-up 30
Welcome menu 30
Basics 31
Menu Structure 32
System configuration 33
ISDN configuration 34
LAN configuration 34
Making and ending calls 35
Making a call 35
ISDN call 35
LAN call 35
Access Code 35
Using sub-address / extension address / MCU password 35
Selecting / setting default quality (bandwidth) 36
Selecting / setting default network 37
Answer a call 37
End a call 37
Correcting keying mistakes 37
Directory 38
Add New Entry 39
Delete Entry 39
Edit Entry 39
Delete Entry 39
Add MultiSite Entry 40
Add Site 40

General use 41

Adjusting volume 41
View outgoing video (selfview) 41
Microphone on/off 41
Do Not Disturb / Sleep Mode 41
Controlling the Main Camera 42
Moving / zooming camera 42
Focusing camera 42
Selecting video sources 42
Voice Activated Camera Positioning 43
Setup 43
Activating 43
Deactivating 43
Presets 44
Selecting presets 44
Storing presets 44
Far end camera control (FECC) 44
Sending/receiving still images 45
Sending a still image 45
Viewing a still image 45
Receiving a still image 45
Requesting a still image 45
Duo Video 46
Add Duo Video 46
End a Duo Video call 47
Controlling camera, changing video source, presets in a Duo Video call 47
MultiSite (MCU) 48
MultiSite cascading 49
Establishing MultiSite meetings using Directory 49
Adding an extra site - dial out 50
Adding an extra site - dial in 51
Disconnecting sites from a conference 51
PC Presenter 52
PC SoftPresenter 52

Web-interface 53
Text Chat / Closed Captioning 53
Streaming 54
T.120 and other PC applications 54

Advanced use 55

Main menu 55
Call quality 56
Audio 56
Video 56
Natural Video 56
VGA Resolutions 56
Advanced call quality 57
Audio 57
Video 57
Resolution 57
H.331 57
Status Format 57
Presentations 58
Presentation Mode 58
Duo Video Quality 58
Duo Video Mode 58
Duo Video Number 58
Duo Video / Still Image source 58
Auto-display still image 59
Still image filter 59
Utilities 59
Autoanswer 59
Far end camera control 59
Dual Monitor 59
Auto-PIP 59
Welcome Menu 60
Continuous Presence 60
MCU status line 60
System Name 61
MCU services 61
Quick Menu 62
When connected to an MCU 62
When MultiSite 62
Request floor 62
Release floor 62
Terminal Names 62
View site # 62
End view 62
Chair control 63
Take chair 63
Release chair 63
Floor to site # 63
Release Floor To Site 63
Disconnect site # 63
Terminate meeting 63
Audio Settings 64
Audio Inputs 64
Mix Mode 64
Level Settings 65
Audio Outputs 65
Level Settings - Outputs 66
Echo Control 66
Noise Reduction 66
Room Size 67
Motion 67
Automatic Gain Control (AGC) Settings 67
Tips for improving the echo canceller performance: 68
Alert Tones & Volume 68
Alert Speaker 68
Restore Audio Defaults 68

Video Settings 69
- Camera Tracking Mode 69
- Document Camera 69
- PC 69
- Focus 69
- Brightness 69
- Whitebalance 69
- Video Name 70
- VGA Settings 70
  - VGA Out 70
  - VGA Out Quality 70
- VNC Settings 71
  - Address 71
  - Display Number 71
  - Password 71
  - Start using VNC 71

Terminal Settings 72

Network Configuration 72
- ISDN-BRI Settings 73
  - ISDN Switch Type 73
  - Line Setup 74
  - Advanced ISDN settings 75
- ISDN-PRI Settings 76
  - Number 76
  - PRI Switch Type 76
  - Channel Hunting 77
  - Line Settings 78
  - Advanced ISDN Settings 78
  - Advanced ISDN-PRI Settings 78
- Leased E1/T1 Settings 79
  - Network Interface 79
  - Max Channels 79
  - Start Channel 79
  - T1 Line Coding 79
  - Line Settings 79
- External network settings 79
  - Call control 80
  - Network clocking 80

LAN Settings 81
- Streaming 81
  - Address 81
  - Address Port 81
  - TTL/Router Hops 81
  - Streaming Source 81
  - Allow Remote Start 81
  - Announcements 82
  - Video Rate 82
  - Password 82
  - Start/Stop Streaming 82
  - How to view streaming 82
- H.323 Settings 82
  - E.164 alias 82
  - Use Gatekeeper 82
  - Gatekeeper IP-address 82
  - H.323 Prefix 83
  - Register 83
- Advanced H.323 Settings 83
  - IP Precedence 83
  - IP Type of Service (TOS) 83
  - RSVP 83
  - NAT 84
  - NAT Address 84
- IP Settings 84
  - IP-assignment 84
  - IP-address 84
  - IP-subnet mask 84
  - Gateway 85

Ethernet Speed 85
Restart 85
SNMP Settings 85
SNMP Trap Host 85
SNMP Community 85
Call Settings 86
Incoming MCU calls 86
Incoming telephone calls 86
Fallback to telephony 86
Access Code 86
Encryption 87
Max Call Length 87
Network Profiles 87
Dataport configuration 88
Dataport 1 88
Data mode 88
Control mode 88
Modem mode 88
T.120 88
Dataport 2 89
Language 89
Software Options 89
Diagnostics 90
System info 90
Channel status 90
Call status 91
Restore defaults 91
Test subsystem 92
Far End Loop (ISDN only) 92
System Selftest 92
View current settings 92
Appendix 1 93
Connecting the HCS III to ISDN using Network Adapters 93
Connecting 93
Configuring 93
Appendix 2 94
Using Telesync TS-256 SW56/ISDN adapter 94
Connecting 94
Configuration of Telesync Adapter 94
Configuration of the system 94
How to call 94
Appendix 3 95
Connecting the system to PRI/T1 95
Using CSU adapter 95
Connecting to Adtran T1 ESF CSU ACE 95
Configuration of the system 95
Configuration of Adtran T1 ESF CSU ACE 96
Appendix 4 97
Environmental considerations 97
Iris control and lighting 97
Background 97
Loudspeaker volume 97
Appendix 5 98
Using the file system 98
Appendix 6: Access Code 99
Technical Description 100
Abbreviations 103
Index 104
Servicing 106

Introduction

This User Manual is provided to help you make the best use of your TANDBERG system. The system offers superior quality audio and video in a fully-featured unit.

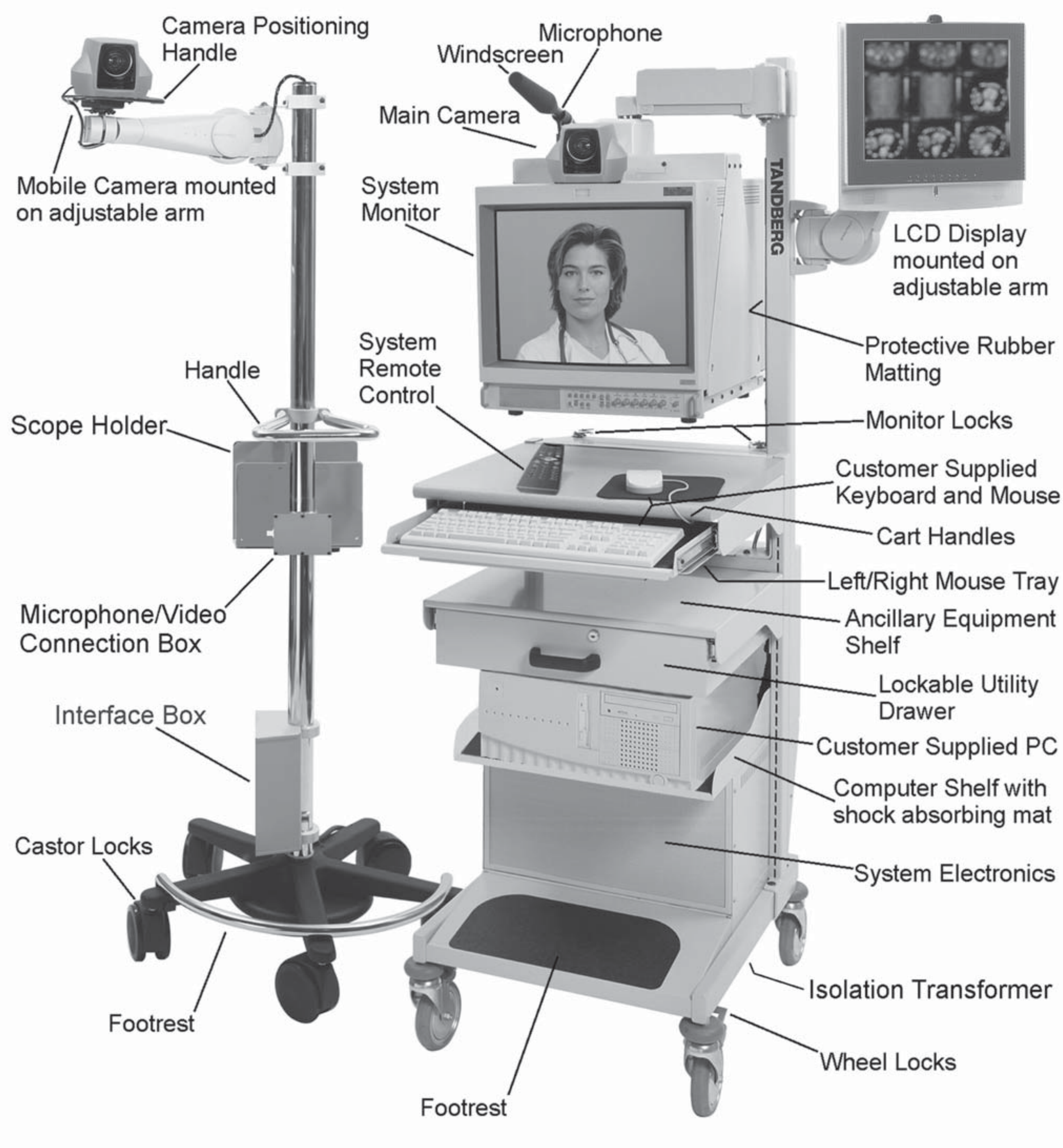
Main Features:

- Supports videoconferencing via both IP and ISDN networks.
- Selection of up to 3 Mbps call quality.
- Built-in MultiSite[TF] *- a maximum of 5 sites including a minimum of 1 telephone call can participate in joint meetings, each benefiting from the same superb audio and video quality. Both Continuous Presence and Voice Switched mode is supported. A combination of ISDN and IP participants is possible. The TANDBERG videoconferencing system can also be used purely as an audio-bridge (with an ISDN connection).
- Embedded encryption for call privacy and security.
- Natural Presenter Package* consisting of:
  - Duo Video[TF] - allows participants at the far end to simultaneously watch a presenter on one screen and a live presentation on the adjoining screen.
  - Digital Clarity[TF] - participants enjoy presentations of exceptionally high quality resolution video.
  - PC Presenter[TF] - an easily accessible PC connection plug.
  - PC SoftPresenter[TF] - show PC images via your LAN connection.
- Natural Video[TF] - 60 fields per second true interlaced picture.
- Downspeeding[TF] - if channels are dropped during a videoconferencing session, the connection is automatically maintained without interruption.
- Streaming – allows broadcasting of audio/video via an IP network.
- W.A.V.E (Wide Angle View) Camera - delivers the widest angle of view in the industry.
- Natural Audio Module™ - specifically designed for videoconferencing, this audio system creates an exceptionally realistic environment.
- Web-interface for streaming, text chat/closed captioning, system management, diagnostics and software uploads.
- Worldwide compatibility with other standards-based videoconferencing systems.

TIP In this guide, we've included helpful tips and notes. They appear like this one.

* - option. To check which options are installed, press MENU and the Quick key 'System Info'.
TF- TANDBERG first.

At a Glance — The HCS III System



Main HCS III Cart

Camera

The main WAVE (wide angle view) camera is mounted on top of the monitor and is continent specific (NTSC for North America or PAL for Europe). It is a high quality colour camera with a fast pan/tilt/zoom action. The camera is controlled by the system's infrared remote control which operates pan/tilt, focus and zoom. You can pre-store up to ten camera positions using the remote control.

Microphone

The standard TANDBERG HCS III Healthcare videoconferencing system is designed as a portable diagnostics aid and communication tool that can be moved from examination room to examination room within a medical facility. As such, it is intended for use where the person talking is within about 6 to 10 feet of the system, and is in front of the system. Sometimes however, circumstances will require that the HCS III be used in larger rooms, and/or with people speaking further away from it. In these instances, Tandberg recommends using the "external microphone" supplied with the system.

Monitor

The monitor displays the far-end and near-end videoconferencing sites. The monitor is also used for displaying the HCS III menus, on-screen help, video from connected video sources and still video images. When the monitor is used for any HCS III function, Line B must be selected on the monitor's control panel.

The monitor is suspended by the cart to allow swivel and tilt adjustment. If the cart is to be moved, the monitor must be secured to the table below it using the attaching clips that are mounted at the rear of the table.

Warning

For more information concerning the mobility of the system, see Precautions on pages 5 and 6.

LCD Display

The LCD display is used for dual monitor mode and the customer supplied PC. It supports 16 million colours in VGA, SVGA, and XGA pixel formats. It has anti-glare coating and is mounted on a fully adjustable arm that allows for easy viewing. Controls for the display are located at the bottom of the front panel. Refer to the LCD User Manual for further information.

PC (customer supplied)

The customer supplied PC (with video capture card, if required) is placed on the shelf just below the utility drawer. All the required audio, video, and communication cables for the computer are permanently installed on the cart. A desktop (not tower) style PC is intended for placement on the shelf. Other specifications for this PC are based on customer requirements and not the HCS III system.

Warning

The safety of the system could be compromised if the PC is not certified and installed as per indicated under the Warning section on pages 4 and 5.

Keyboard and Mouse (customer supplied)

The customer supplied keyboard is placed within the retractable tray below the table top. The customer supplied mouse can be placed on the table top or the mouse tray that is retractable from beneath the left or right side of the keyboard tray. When moving the cart, store the mouse behind the keyboard, retract the mouse tray and retract the keyboard tray fully under the table.

Cart

The cart is designed to house all the equipment in a minimal amount of space. Its large wheels provide quick and easy mobility. To move cart, use the handles underneath the front of the table top. To keep the cart in place, press the foot locks on each wheel.

Warning

For more information concerning the mobility of the system, see Precautions on pages 5 and 6.

The cart supports the monitor, camera, and microphone with an adjustable arm that allows their movement after the cart has been locked in place. Rubber padding on the monitor support post protects the monitor in case it is pushed against the post. An Allen key is stored on top of the monitor in case the supporting arm needs adjustment. The same Allen key can also be used for adjusting the LCD display mounting arm, and the camera mounting arm on the optional mobile camera cart.

The ancillary equipment shelf and utility drawer assembly is positioned at a standard height between the computer shelf and keyboard tray. The utility drawer can be locked to provide a safe storage area. It normally contains the documentation for the HCS III components from the various manufacturers.

The computer shelf is positioned just below the utility box. The shelf is covered with a shock absorbing pad to keep the PC steady when the cart is moved. The pad should not be removed. A four receptacle power bar is located at the rear of the shelf, and has hospital grade type receptacles for North America or IEC type receptacles for Europe. It can supply a maximum of 480 watts to the customer supplied PC, VCR and other hospital approved ancillary equipment. Power to the bar is supplied by the isolation transformer located at the bottom of the cart.

Warning

The safety of the system could be compromised if the ancillary equipment is not certified and installed as per indicated under the Warning section on pages 4 and 5.

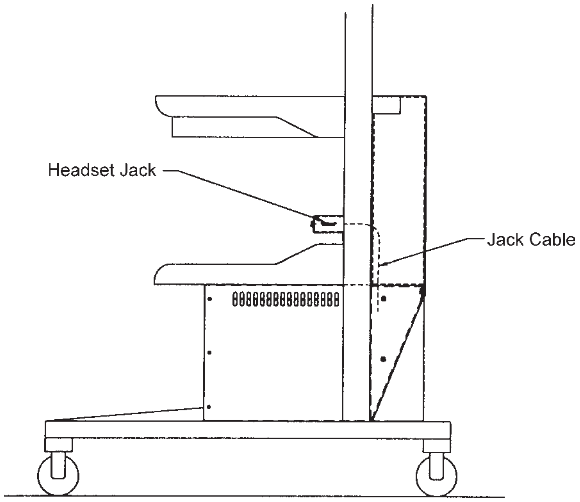
The system electronics are located within the enclosed area at the bottom of the cart. There are no user serviceable parts inside. There is a main power switch on the isolation transformer at the bottom of the cart that is not considered user accessible, and is normally left on. In North America, the main power cable uses a hospital grade plug. The main HCS III cart provides a grounding stud at the bottom left corner of the monitor’s rear panel (refer to the Sony monitor user manual).

Headset and Jack

The headset can be used as an alternative to the main system speakers. When the headset is plugged into the jack that is mounted on the cart post above the computer shelf, the audio is cut from the system speakers and is routed to the headset. The other system audio outputs are not affected by the operation of the headset. Typically, a physician will use the headset to keep all incoming audio private. A headset extension cable is also supplied so that the headset can be used in conjuction with the optional mobile camera cart.

Warning

Use only the Tandberg supplied AKG model K141 headset and extension cable.



Rear Interface Panel

The rear interface panel provides the interface to other equipment and the switched digital communications network. On the bottom of the panel is a cable wrap bracket. When moving the cart, all cables must be wrapped around this bracket and securely fastened.

Remote Control

The TANDBERG remote control is used to control all functions of the HCS III.

Network Terminating Units

In North America, to use the six ISDN BRI interfaces provided on the main HCS III cart, network terminating units must be used to connect the HCS III system the public ISDN network. When network terminating units are required, two Inter-Tel Inc. model NT384 are installed within the enclosed area at the bottom of the cart. See Appendix 1 for more information on these units.

Mobile Camera Cart (optional)

Camera

A standard, continent specific (NTSC for North America or PAL for Europe) TANDBERG WAVE camera is mounted on a fully adjustable arm on the mobile stand. The camera provides high resolution images with a fast pan/tilt/zoom action that is controlled from the Tandberg remote control. Up to ten camera positions can be stored. To move the camera, always hold it by the handle and not its body.

Cart

The mobile camera cart provides excellent stability, the necessary height for the camera, and allows for easy movement in confined areas. A large handle is provided midway along the main support post. Five castors are used for stability and two of them can be locked by stepping on the foot lock. The bar above three of the castors is provided for a foot rest.

A shelf is provided for holding other hospital approved specialized cameras for attaching to medical devices such as otoscopes, opthalmascopes, etc. To securely hold various sized equipment, the width of shelf is adjustable by loosening and tightening the two large thumbnuts underneath the shelf. The back of the shelf is also used for holding the mobile camera remote control.

The hospital approved equipment that is used with the mobile cart must be plugged into either the power bar within the main HCS III cart, or into the same receptacle that the power cord of the main HCS III cart is plugged into.

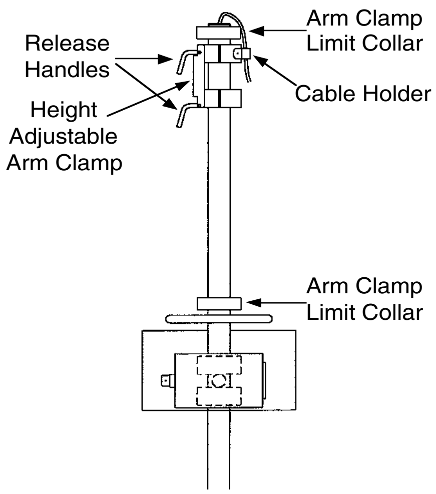
A microphone/video connection box located at the back of the shelf, provides one video input connection and one microphone connection. A short video cable is provided to attach a medical device on the shelf to the video input connector. The microphone input is typically used for a microphone that is clamped to the cart handle, such as that provided in the optional microphone package (described in next section).

The box at the bottom of the cart holds the connectors for the main unit-to-unit cable, as well as the mobile camera control device.

Height Adjustable Camera Arm

The height adjustable camera arm clamp incorporates two release handles and provides the camera with approximately 39 inches of vertical movement. This enables a physician to have precise placement of the camera all the way down to the height of an examination table.

Relative to the floor, the height of the camera lens can be adjusted from approximately 45 inches (with camera lens fully tilted up) to 83 inches.



To adjust the camera arm height, support the arm with one hand and loosen the two release handles only enough to permit movement of the arm, and carefully move the arm up or down to the required height. Securely tighten both release handles.

Warning

Do not loosen the two release handles without supporting the arm, as the arm may drop quickly and cause injury.

Installation

Precautions

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninstalled telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- The socket outlet shall be installed near to the equipment and shall be easily accessible.
- Never do any installation of cables without first unplugging the main HCS III cart power cord.
- 1TR6 network type is not approved for connection directly to the telecommunications network. This network type is only to be used behind a PABX.
- X.21 network type is not approved for connection directly to the telecommunications network. This network type is only to be used together with already approved equipment, and is not meant for direct connections to the telecommunication networks.
- V.35/RS-449/RS-366 network type is not approved for connection directly to the telecommunications network. This network type is only to be used together with already approved equipment, and is not intended for direct connection to the telecommunication networks.

Unpacking

The main HCS III cart is delivered in one crate. The optional mobile camera cart is delivered separately, in its own crate. The equipment is unpacked as follows:

1) Remove the steel straps from the crate.
2) Remove the top cover by lifting it up and off the two side panels.
3) Remove the outer side panel by lifting it out from the skid and away from the unit. Remove the inner side panel the same way.
4) Remove the unit's right side Styrofoam packing by carefully pulling it away from the unit along the entire height.
5) Remove the unit's left side Styrofoam packing by raising the camera arm by 90 degrees so that it is horizontal. Do not rotate the display because it must be narrow to fit through the opening in the Styrofoam. Carefully pull the Styrofoam away from the unit.

6) Remove the ramp that is located under the unit and place it against the front of the skid. With one person holding the left side of the unit, and one person holding the right side of the unit, roll and guide the unit off the skid and down the ramp.

7) We recommend that you store all the packing material specifically designed for this unit, in case the need should arise to transport the system to another location.

The HCS III consists of the following items:

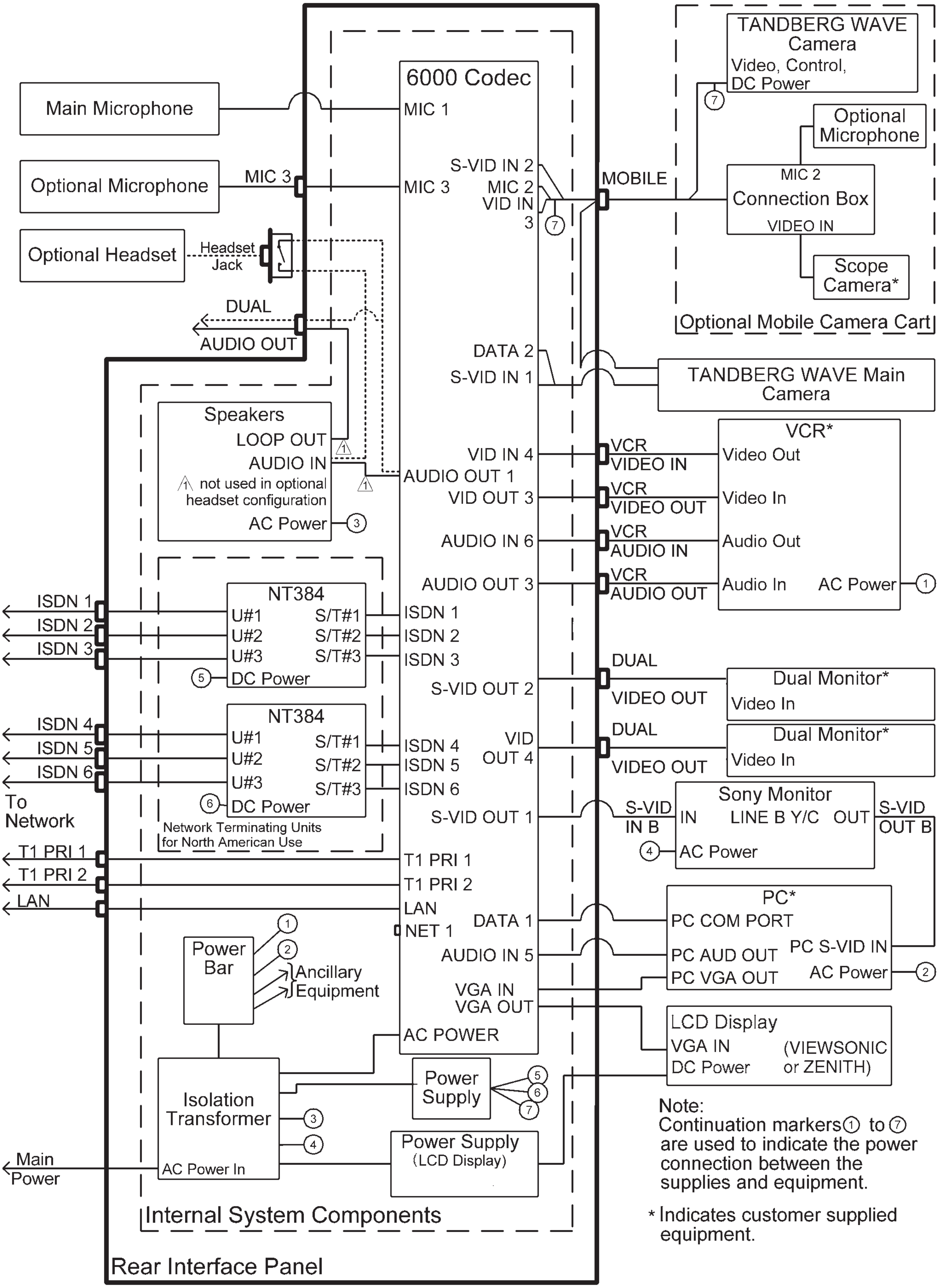
- Main cart
- Mobile camera cart (optional)
- Headset and jack

The utility drawer on the main cart contains the following:

- Microphone
- Remote control
- Batteries
- User manuals
- Short video cable
- Stick-on cable tie bases and loose cable ties

Connecting the System

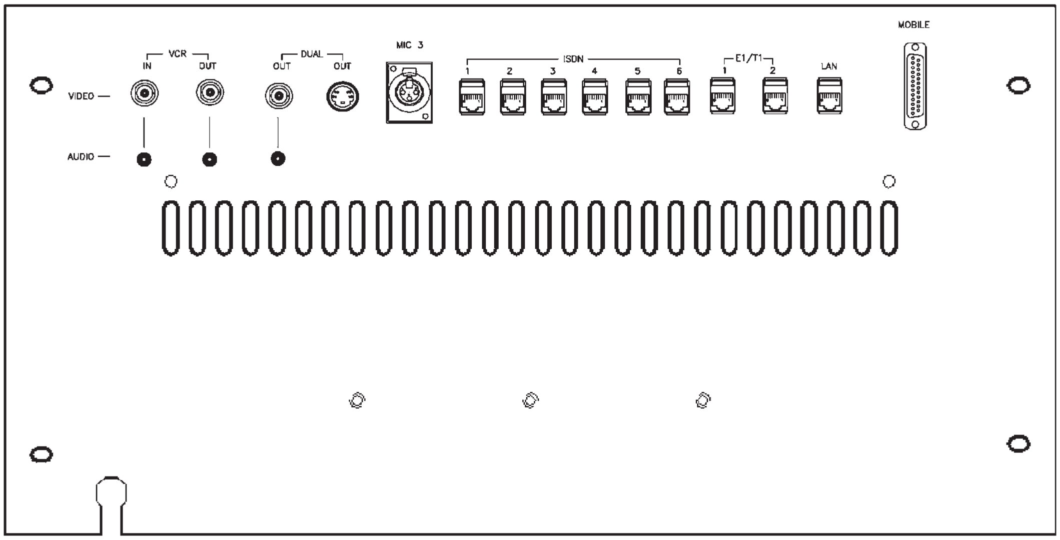
The following block diagram provides an overview of the cabling connections that are required for the main HCS III cart and optional equipment. Before installing the system's cables and components, make sure that the cart's main power plug is unplugged from any power source.



Note:
Continuation markers ① to ⑦ are used to indicate the power connection between the supplies and equipment.

* Indicates customer supplied equipment.

Rear Interface Panel



NOTE If equiped with the Zenith Lcd display, the Dual Out S-Video connector will not be available

VCR

- 1 video input supporting composite signals through a BNC connector (Video In 4 on Codec).
- 1 video output supporting composite signals through a BNC connector (Video Out 3 on Codec).
- 1 audio input (line level) via an RCA connector (Audio In 6 on Codec).
- 1 audio output (line level) via an RCA connector (Audio Out 3 on Codec).

NOTE Use cable ties to neatly secure and stow cables when required.

Warning

Any equipment that is connected to VCR 1 must be powered from either the cart's internal isolated power bar or an external isolated transformer, as per the requirements indicated on pages 4 and 5 under Warning.

To connect a video cassette recorder (VCR)

A VCR is used for sending and recording video sequences. When recording, a VCR will record the incoming video, the local audio and the audio from the remote side.

Place a VCR onto the shelf above the utility drawer. Connect the VCR's power cord to the cart's isolated power bar located at the back of the PC shelf, as follows:

1) Remove the back panel from the cart's PC shelf by removing the two screws on the panel's bottom corners, and then removing the two screws on the panel top.

2) Remove the cable entry cover from the post.

NOTE Use cable ties to neatly secure and stow cables when required.

3) Feed the power cord down into the post and out to the power bar. Plug the power cord into the cart's isolated power bar.

4) Re-install the cable entry cover and the back panel on the cart.

Connect the VCR cables to VCR on the rear interface panel as follows:

1) Connect a video cable between Video Out on the VCR and VCR VIDEO IN.

2) Connect a video cable between Video In on the VCR and VCR VIDEO OUT.

3) Connect an audio cable between Audio Out on the VCR and VCR AUDIO IN.

4) Connect an audio cable between Audio In on the VCR and VCR AUDIO OUT.

For playback operation, press

on the remote control.

Make sure that '`Audio6 (VCR)`' is '`On`' (see '`Inputs`' in the '`Audio Settings`' menu). If the audio from the VCR is too low, the level can be adjusted in '`Level Settings`' in '`Audio Settings`', '`Inputs`'.

The audio from the VCR will be sent to the other side and to the local speaker system.

For most VCRs, the default audio output settings will be set correctly. If adjustments are required, see section 'Level Stettings' in 'Outputs', 'Audio Settings'.

Dual

• 1 video output signal through a S-Video connector (Video Out 2 on Codec).

• 1 video output signal through a BNC connector (Video Out 4 on Codec).

• 1 audio output (line level) via an RCA connector (LOOP OUT on speaker module).

NOTE Use cable ties to neatly secure and stow cables when required.

NOTE If dual monitor settings is set to VGA, no output will be seen from the Dual video connectors.

The format of the video output will be either PAL or NTSC depending on your country's standard video format.

Warning

Any equipment that is connected to Dual must be powered from either the cart's internal isolated power bar or an external isolated transformer, as per the requirements indicated on pages 4 and 5 under Warning.

ISDN BRI Cables

Take the six ends of the ISDN BRI cables and verify that they are labelled ISDN 1, 2, 3, 4, 5 and 6.

Connect ISDN cable No. 1 to the first ISDN socket (S/T-interface) provided by the service provider. This will be your main number. Connect ISDN cable No. 2 to the second ISDN socket, ISDN cable No. 3 to the third ISDN socket, ISDN cable No. 4 to the fourth socket, ISDN cable No. 5 to the fifth socket and ISDN cable No. 6 to the sixth socket.

North America: The HCS III does have built in network terminators as standard. If your wall socket provides you with an ISDN S/T-interface, you will need to bypass network terminating units between your HCS III and the ISDN lines, see Appendix 1.

NOTE Write down the numbers associated with each of the ISDN lines. You will need them later to configure the system.

NET 1 External Network Interface

To connect the HCS III system to a network using the NET 1 connector provided on the Codec, proceed as follows:

Remove the rear interface panel that is fastened with four screws, to gain entry to the Codec.

Route the required RS366/V35 cables up from the bottom of the cart, through the cable entry hole, and plug the connector into the NET connector on the Codec. Tighten the two screws to secure the connector. Use cable ties to secure the cable to the cart, to prevent any tension on the cables.

Connect the other end of the cable to the customer supplied CSU/DSU.

Re-install the rear interface panel with the four screws.

PRI Interface

If you are using the E1/T1 interface, the E1/T1 Port 1 cable must be connected to a CSU unit, see Appendix 3.

The E1/T1 Port 2 Cable is used to fascilitate the operation of two or more codecs in the same environment, using only one incoming T1 PRI line. Refer to Appendix 3 for cabling instructions.

LAN Cable

Connect the LAN cable from the LAN port on the rear panel of the main HCS III cart, to a Local Area Network. This LAN connection will allow H.323 type calls and control of the codec using a PC with standard WWW-browser. See the section on Ethernet Functionality for futher instruction.

Mobile Camera Cart Cable

Connect the mobile camera cart cable to the MOBILE connector on the rear panel of the main HCS III cart, and fasten the connector with the two thumb screws.

Microphone 3 (MIC 3)

Connect an additional microphone as required, to this connector. By default, this input is active.

Installing a PC

To install a PC on the cart, proceed as follows.

1) Remove the back panel from the cart's PC shelf by removing the two screws on the panel's bottom corners, and then removing the two screws on the panel top.
2) Place the PC on the shelf close to the back, leaving only enough room for the cables between the PC and the rear panel of the cart.
3) Place the keyboard and mouse on their respective shelves and route their cables from the rear of the keyboard shelf to the cart post. Remove the cable entry cover from the post and feed the cables down into the post and out to the PC. Plug the keyboard and mouse cables into their respective connectors on the PC. Re-install the cable entry cover on the post.

NOTE USE CABLE TIES TO NEATLY SECURE AND STOW CABLES WHEN REQUIRED.

---

4) Connect the four cables that are permanently installed on the cart to the PC as follows:

   Remove the terminator labelled S-VIDEO TERMINATOR from the cable connector labelled PC S-VID IN and connect the cable to the 'S' video input on the PC.

NOTE IF THE PC IS EVER REMOVED OR DISCONNECTED, THE S-VIDEO TERMINATOR MUST BE RECONNECTED TO THE PC S-VID IN CABLE.

   Connect the cable labelled PC VGA OUT to the monitor output connector on the PC.

   Connect the cable labelled PC COM PORT to the RS-232 communication connector on the PC.

   Connect the cable labelled PC AUD OUT to the audio output connector on the PC.

5) Connect the power cable (supplied with PC) from the PC to the power bar at the rear of the PC shelf.
6) Re-install the back panel on the cart.

Main HCS III Cart Microphone

Remove the microphone from its shipping box (stored in utility drawer), and connect it to its receptacle on top of the monitor. Snap the body (black area) of the microphone into the mounting adapter. Ensure that the low frequency cutoff switch is in the normal position indicated by " - ". Slip the windscreen fully onto the microphone, and adjust the microphone direction as necessary.

Adding an external microphone to the HCS III:

1) Place the table microphone on a flat surface or table.
2) Plug the microphone into the microphone connector labelled as `Mic 3` at the back of the HCS III cart.

Enable the external microphone within the system setup menu as follows:

3) With the TANDBERG I/R remote control, press the "MENU" button.
4) Highlight the Audio Setup option, and press "OK."
5) Highlight the Inputs option, and press "OK."
6) Turn off the Mic 1 input. This is to prevent signal cancellation that may occur when a second microphone (not in use) picks up the same sounds as that of the "active microphone."
7) Make sure that the Mic 3 input is on.
8) Still in the Inputs menu, highlight the Level Settings option, and press "OK."
9) If using a table microphone, set the gain of Mic 3 to "+**3.0 dB**."
10) After setting the gains, press the "MENU" button to exit the menu.

The system is now ready for use with the external microphone.

To use the HCS III without the external microphone, unplug the external microphone from the cart. Then re-activate the standard microphone by repeating steps **3** to **6** above, except now turn on the Mic 1 input.

Ancillary Equipment

Warning

Any ancillary equipment that is to be used with the HCS III must be powered from either the cart's internal isolated power bar or an external isolated transformer, as per the requirements indicated on pages 4 and 5 under Warning.

Install ancillary equipment as follows:

1) Place equipment onto the shelf above the utility drawer.

2) Connect the required cables from the ancillary equipment to the rear interface panel. Connect the equipment's power cord to the cart's isolated power bar located at the back of the PC shelf, as follows:

   i) Remove the back panel from the cart's PC shelf by removing the two screws on the panel's bottom corners, and then removing the two screws on the panel top.

   ii) Remove the cable entry cover from the post.

NOTE Use cable ties to neatly secure and stow cables when required.

   iii) Feed the power cord down into the post and out to the power bar. Plug the power cord into the cart's isolated power bar.

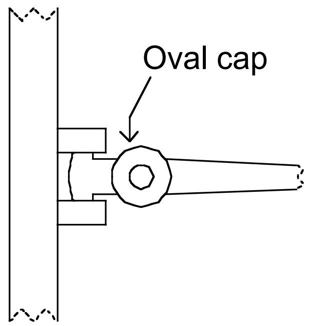
   iv) Re-install the cable entry cover and the back panel on the cart.

Cart Adjustments

Triple-pivot Arm Counterbalance Adjustment

The following procedure applies to the optional LCD display mounting arm and the optional mobile camera cart arm.

A nitrogen gas spring is used to counterbalance the weight of the LCD display (or camera). To adjust the weight capacity of the arm, proceed as follows:



1) Remove the oval cap by prying it off with your thumbnail.
2) Position the arm at 90 degrees with respect to the cart post.

For adjustment purposes, a 3/16” hex wrench is stored in a clip behind the monitor’s tilt/swivel mechanism.

3) Take the 3/16” hex wrench and insert it into the hole. Turn the screw clockwise to decrease or counterclockwise to increase the weight capacity.
4) Remove the hex wrench and check the arm movement. Repeat the procedure if further adjustment is necessary.
5) When adjustment is complete, re-install the oval cap on the arm and return the wrench to its storage clip behind the monitor’s tilt/swivel mechanism.

Monitor Suspension Arm Adjustment

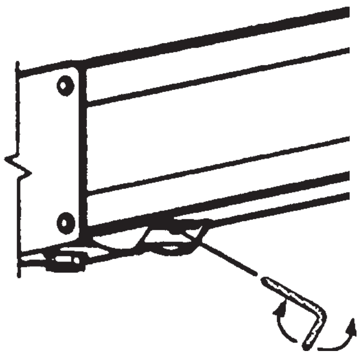
To adjust the suspension arm’s counterbalance, proceed as follows:

1) Lift the monitor to its uppermost position.

The counterbalance adjustment screw is accessed from the under side of the suspension arm near the monitor mounting bracket.

For adjustment purposes, a 3/16” hex wrench is stored in a clip behind the monitor’s tilt/swivel mechanism.

2) Take the 3/16” hex wrench and insert it into the access hole. Turn the screw clockwise to increase or counterclockwise to decrease the counterbalance.
3) Remove the wrench and check the arm movement. Repeat the procedure if further adjustment is necessary.
4) When finished, return the wrench to its storage clip behind the monitor’s tilt/swivel mechanism.



Operational Considerations

Iris Control and Lighting

By default the HCS III camera will use an automatic iris to compensate for changes in lighting. In addition to this feature you may further assist the HCS III to maintain the best possible image quality by paying special attention to environmental lighting and background colours as described below. Remember the HCS III will send live images of yourself *and* your immediate surroundings.

- Avoid direct sunlight on the subject matter i.e. yourself, the background or onto the camera lens as this will create harsh contrasts.
- If light levels are too low you may need to consider using artificial lighting. Again, avoid direct illumination of the subject matter and camera lens.
- When using artificial lighting, ‘daylight’ type lamps will produce the most effective results. Avoid coloured lighting.
- Indirect light from shaded sources or reflected light from pale walls, often produces excellent results.
- Avoid harsh side lighting or strong light from above, for example: strong sunlight from a window or skylight, as this may put part or all of the subject matter in shadow or cause silhouetting.
- If you still have problems with the iris and lighting, manual adjustment of the camera parameters might help - see the ‘`Video Settings`’ menu:
- If a subject is backlit, e.g. a person in front of a window, it will appear dark. This can be corrected by switching on the backlight function (automatic on some cameras).
- Dim scenes can also be improved by manually adjusting the brightness.

Brightness Control

For adjusting brightness, colours or other adjustments of the monitor, you must use the controls monitor’s front panel. Adjust the monitor to suit the conditions of the room. More adjustments can be made using the on-screen menu. Refer to the monitor’s user manual for more information.

Loudspeaker Volume

The audio system uses the built-in high quality loudspeakers and amplifier specifically designed for this system. The volume of the audio system is controlled by the volume control keys on the HCS III remote control. The volume control on the monitor is not used.

Background

The appearance of the picture background is very important but easily overlooked. It is important to remember that the camera also shows what’s behind you when in a videoconference. To ensure a suitable background we recommend you consider the following:

- Use a neutral coloured background with a medium contrast and a soft texture, e.g. a plain curtain with no heavy patterns or strong colours that may adversely tint the whole scene.
- Avoid moving backgrounds, for example: curtains in a draught, moving objects, or people walking behind you, as this may both reduce image quality and distract the attention of the calling party.
- Do not place the camera facing a doorway.

Guidelines for setting up videoconferencing rooms

The following are a set of guidelines to consider when either building a videoconferencing room, or using an existing room for videoconferencing.

Lighting:

- Low Contrast desired for light intensity. No dark spots.
- Intensity @ table 800 - 1400 Lux as measured with an Incident light meter.
- Intensity @ back wall: minimum ˚ of that measured at table, Max ∫ of that measured at table.
- Color temperature: Depends upon wall color and camera. Typically 3200 - 3600 degrees Kelvin
- Block sunlight from entering room.

Seating Area (Table):
- Should allow all participants to see Monitors.
- Should allow camera to "see" all participants.
- Should allow participants to see each other.
- Should allow 3 linear feet for each participant.
- Non-shiny non-patterned preferably light grey surface (if table used).

Walls:
- Color: Depends on participants skin tones, cameras, and lighting. Generally high contrast color desired . Light blue is commonly used.
- Acoustically reflective surfaces (such as glass or concrete) should be covered with curtains or sound treatment.

Audio:
- Noise Floor Maximum 50dBC.
- Noise Floor preferred less than 44dBC.
- Reverb Time .3 to .5 sec.
- Absorption Coefficient .25 to .45.
- No flutter echoes.

Ventilation:
- Keep in mind Noise Floor.
- 300W (1024 BTU/HR) per person.
- 400W (1365 BTU/HR) for equipment.
- Intake and exhaust should be located near equipment.
- Velocity = Noise. Therefore keep velocity of air low.

Monitor Size:
- Optimal distance from monitor for viewing people is about 7.5 x monitor size.
- Optimal distance from monitor for viewing documents is about 3.25 x monitor size.
- Viewing Angle: 45 degrees off axis maximum.

Room:
- Should be located away from noise
- Should not have windows
- Doors should be located off camera - A "diamond" shape gives best viewing angles, camera angles, and can seat the most people.

Lighting:

Type	Temp
Bright Daylight near equator	10 000K to 30 000K
Metal Halide Lamp	10 000K
Verilux Reptile Daylight	6 500K
Daylight White Fluorescent	6 300K
Verilux Full spectrum Fluor	6 280K
Verilux Reptile D-light	5 600K
Average Daylight	5 500K
Cool White	4 200K
Lite White	4 150K
3500K Fluorescent	3 500K
Warm White	3000-3200K
100W Light bulb	2 850K
Candlelight	1 900K

Source	Intensity
Sunlight	30 000 to 100 000Lux
TV Studio	2000Lux
Average office	400Lux
By my Computer	600Lux
Moonlight	1Lux

Note: As measured with an incident light meter.

Getting Started

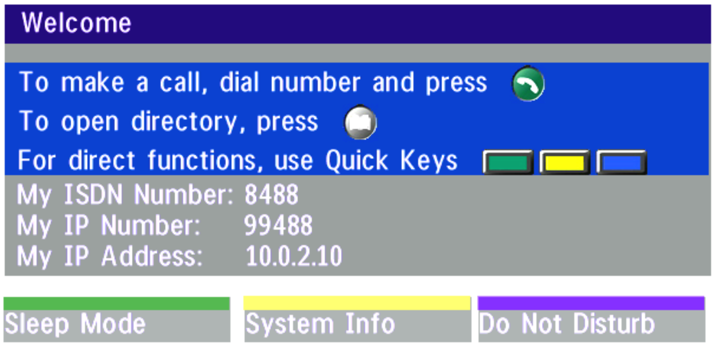
System start-up

Your system should be in standby mode. When in standby mode, pressing any key or picking up the remote control will wake up the system. An incoming call will also wake up the system.

If the system does not respond, check that all equipment is powered on. If the equipment is not on, make sure that the power cord of the main HCS III cart is plugged in. Switch on the monitor by pressing the power button on the front of the monitor and ensure that line B is selected. Likewise, press the power buttons on the optional LCD display and computer. The optional mobile camera cart is powered as long as its cable is plugged into the rear interface panel on the main HCS III cart.

Welcome menu

After a user-definable boot-up logo is shown, the following menu is shown. This menu should provide you with the most important system information. For further system information, select the Quick key '**System Info**'.



Basics

The system's most commonly used functions are accessible directly from the remote control by single key presses. In addition, the user interface is represented by on-screen menus. Individual items within the menus and lists can be selected by moving a white highlighter bar to the desired option.

Quick Keys
The three buttons on top of the remote control refer to the blocks at the bottom of the screen. The text inside the blocks will change depending on which menu is selected. The three Quick Keys have different colors.

Preset keys
Activate pre-stored camera positions.

Video source keys
Activate connected video sources.

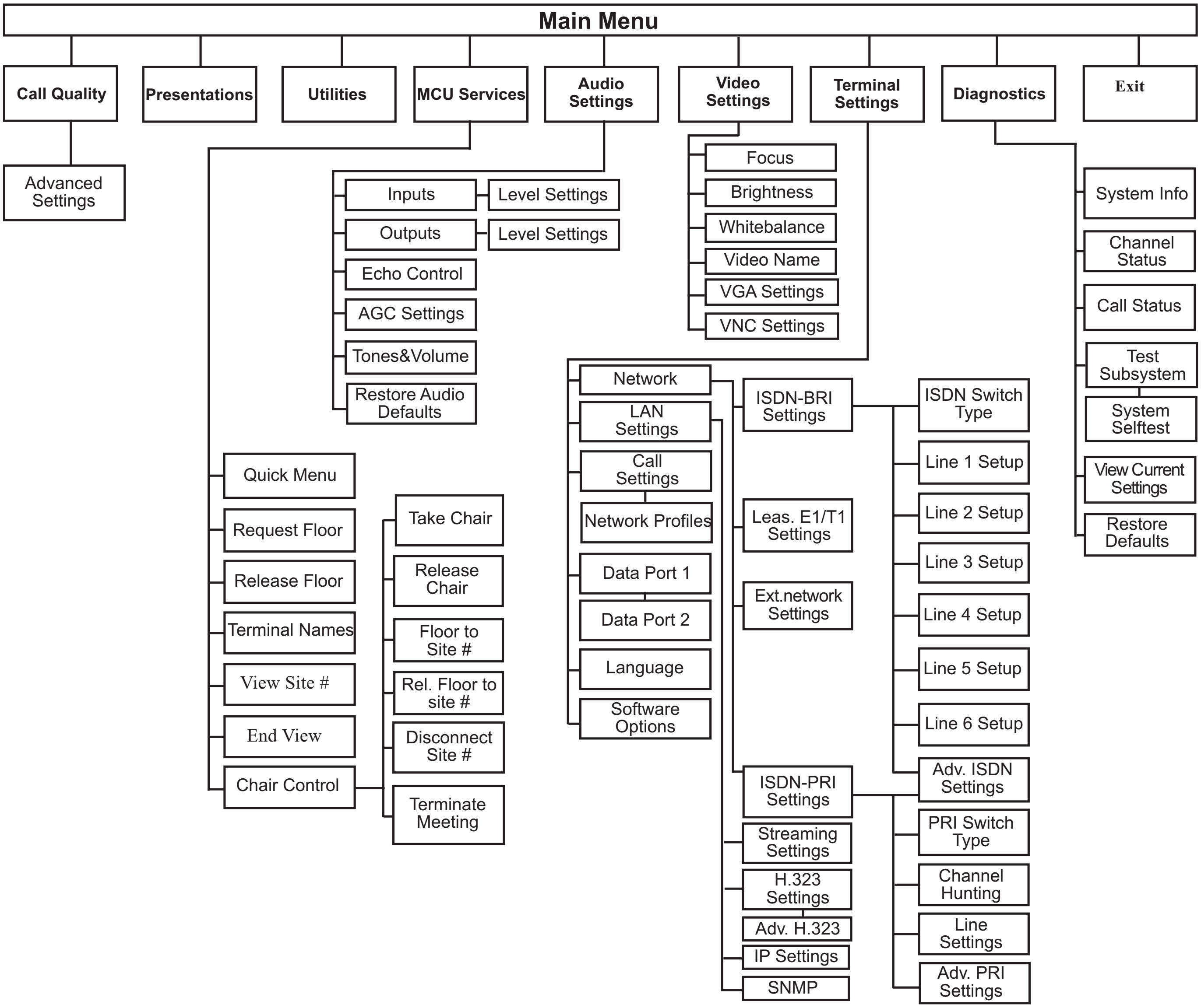
Camera control and menu navigation keys
Frequently used keys allowing you to control your own camera and the far end camera, control your volume, select and move self-view, switch your microphone off and navigate in the menu system.

Dialing keys / Preset keys
Used to make a call. The twelve number keys, (0-9), #, * operate in the same way as on a modern push-button telephone. These buttons are also used when entering a name into a text field.

Menu Structure

The on-screen menu structure is shown below.

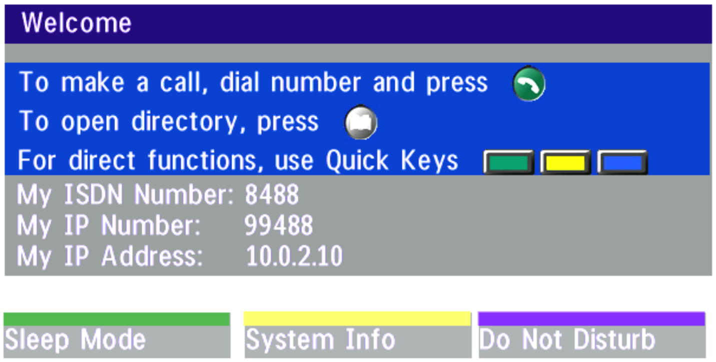
Press the **MENU** key on the remote control to enter/leave the Main Menu.



Press **UP/DOWN/LEFT/RIGHT** to navigate.
Press **OK** to select.

System configuration

- After the system has performed a self-test routine, product logo and a 'Welcome' menu will be displayed on the monitor.



NOTE These settings are essential for optimal system set-up.

- Enabled but unused ISDN lines (lines not active) should be disabled. Select the Quick Key '**System Info**' (on the remote control) to view line status.

menu

Press **Menu** on the remote control. Select the menu '**Terminal Settings**', '**Network**', '**ISDN-BRI settings**'. Select the relevant '**Line Setup**' menu and set '**Enabled: Off**'.

- Enter System Name to identify the system during an MCU conference. Select '**Utilities**', '**System Name**' and enter the name using the number keys (as on a mobile phone).
- Select the language you want to use in '**Terminal Settings**', '**Language**'.
- If you are using two monitors, set '**Utilities**', '**Dual Monitor: On**'.
- To activate MultiSite and/or Presenter, enter an option key (see paperwork accompanying your system), see '**Terminal Settings**', '**Software Options**'.
- Press **Connect** on the remote control. A dial tone should be heard if the network is active.

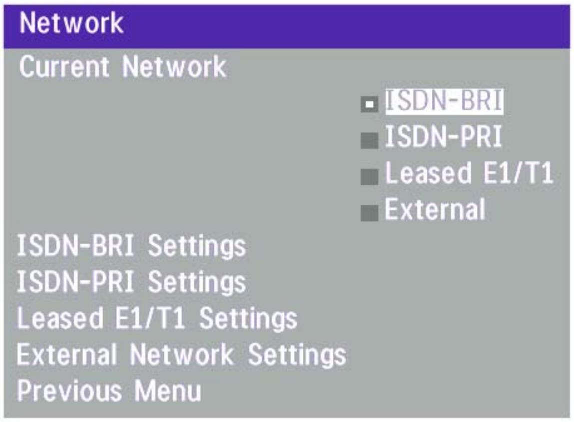
connect

- Using the monitor remote control, adjust the volume on the monitor to a level of your choice. This volume will be the default volume for all calls.

ISDN configuration

For each installation of the system it is necessary to configure the unit. All configuration parameters are available via the menu system. If you are using an external IMUX or special networks, the external equipment may also need to be configured.

• Press **Menu** on the remote control. Select the menu '**Terminal Settings**', then '**Network**'.



Set '**Current Network**' to the network you want to use.

Specify the settings for the selected network in one of the menus.

For details, follow the instructions in chapter 'Terminal Settings', 'Network Configuration' in this manual.

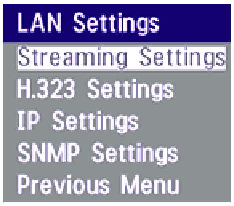
For further information refer to the examples in:

Appendix 1: Connecting the system to ISDN using NT1 network adapters

Appendix 2: Connecting the system to the Switched 56 network

LAN configuration

• Press **Menu** on the remote control. Select the menu '**Terminal Settings**', then '**LAN Settings**'.



Specify the necessary LAN settings according to the instructions from your LAN administrator. If there is an H.323 Gatekeeper present on your LAN, see also '**H.323 Settings**'.

For details, follow the instructions in chapter 'LAN Settings' in this manual.

Making and ending calls

Making a call

To make a call, enter the number or the IP-address of the unit you wish to call using the Dialing keys and press **Connect**.

ISDN call

The system will, by default, try to connect using Quality: Auto (see table overleaf). If the requested quality (bandwidth) cannot be established, the system will establish a connection on as high quality as possible.

The SoftMux ensures high reliability and includes the unique Downspeeding feature. If channels are dropped during a meeting, Downspeeding automatically maintains the connection without interrupting the call in progress. The SoftMux also enables you to dial to other videoconferencing equipment, phones and mobile phones in the same way and provides you with on-screen, real-time feedback on the progress of a call.

LAN call

To make a call via a LAN, enter an IP-address by using a * as the ‘dot’ in the IP-address, e.g. 123*3*0*12 will be interpreted as 123.3.0.12. If a gatekeeper is present, you may place IP-calls using “telephone-style” numbers (an E.164 alias), according to the numbering plan implemented in the gatekeeper. The dialed number will then be translated into an IP-address by the gatekeeper.

Access Code

If the system requires an Access Code, enter the code and press OK to proceed making a call:

Using sub-address / extension address / MCU password

To specify an ISDN sub-address or its LAN equivalent extension address (TCS-4), add a star (*) after the number and then enter the sub-address/extension address.

Example: 12345678*10 (<number>*<Sub-address/extension address/MCU password>)

When calling to external MCU’s requiring a password (TSC-1), this password can be added after the star (*). If no password is specified, a menu will prompt you to enter the password (after connected to the MCU).

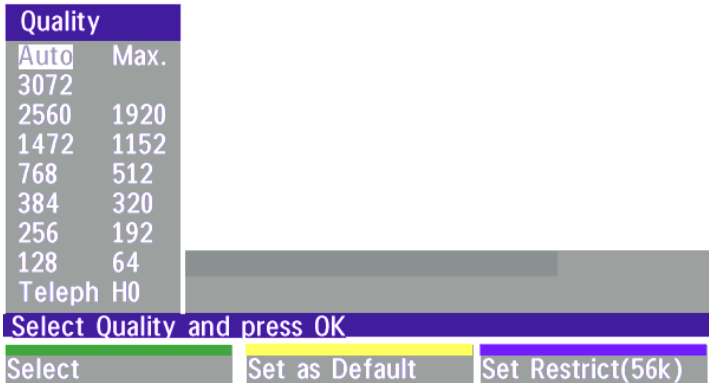
TIP Sub-address is used to address different systems on the same ISDN line.
TCS-4 is used to address different systems on a LAN, when dialing in via a gateway.

Selecting / setting default quality (bandwidth)

The default call quality setting '**Auto**' will be used if no specific quality is selected.

To select quality (bandwidth):

• Press the '**Quality**' Quick Key when you are in the dial menu. The Quality menu will then be displayed:



Type of calls

Auto	384kbps on ISDN/768kbps on LAN
Max	* 768kbps on ISDN-BRI * 1472/1920kbps (23/30Ch) on ISDN-PRI (T1/E1) * 3Mbps(3072kbps) on LAN
3072	3072 kbps (3Mbps, LAN only)
2560	2560 kbps (2,5Mbps, LAN only)
1920	1920 kbps (2Mbps, 30B)
1472	1472 kbps (23B)
1152	1152 kbps (18B)
768	768 kbps (12B)
512	512 kbps (8B)
384	384 kbps (6B)
320	320 kbps (5B)
256	256 kbps (4B)
192	192 kbps (3B)
128	128 kbps (2B)(Bonding/H.221)
64	64 kbps (1B)(H.221)
H0	1xH0 (384 kbps) (PRI only)
Teleph	Telephone Call

NOTE Some software versions and networks do not support all channel selections.

• Move the indicator to the desired bandwidth, then press the '**Select**' Quick Key.

• You may also press the '**Set as Default**' Quick Key in order to make the selected bandwidth the default bandwidth for subsequent calls.

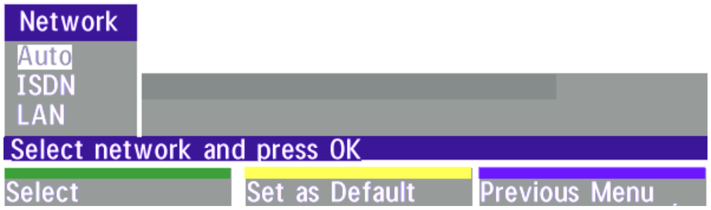
• Press '**Set Restrict (56k)**' to make a restrict call. An indicator '**(56k)**' will be shown behind the number.

TIP **Restricted call**
A restricted call is a call to a 56 kbps network. By default the system will dial an unrestricted call (a call to a 64 kbps network) and downspeed to 56kbps if necessary. To force a restricted call, select 'Set Restrict (56k)'

TIP **Dialing two numbers**
Sometimes (especially when calling to and within North America) it is necessary to dial both ISDN numbers when making a video call using 2x64 kbps or 2x56 kbps. Select '**128**' in the Quality menu. When you return to the Dial Menu, both '**Number:**' and '**2nd:**' are displayed. Enter the second number.

Selecting / setting default network

To select a specific network, press '**Net**' when you are in the dial menu.:



- Highlight network to be used in your call.
- Press '**Select**' to select network or press '**Set as Default**' to set the selected network as your preferred choice for this and all subsequent calls.

If '**Auto**' is selected, the system will select a network based upon the following criteria:

- If an IP-address (e.g. 123*3*0*12) is entered, '**LAN**' (H.323) is selected.
- If the first digits in the number are the same as set in '**H.323 Prefix**' under '**H.323 Settings**', '**LAN**' is selected.
- In other cases, '**ISDN**' (H.320) is selected*.

If you want to assign a specific prefix to the network selection or if you want to define your own network configuration, see '**Network Profiles**' in '**Call Settings**', '**Terminal Settings**'.

Answer a call

To answer a call, press the **Connect** key.

Manual answer of a call is needed if the autoanswer facility is switched off. See 'Utilities' in 'Advanced use'.

End a call

To end a call, press the **Disconnect** key.

TIP ENDING A CALL
SWITCHING OFF THE MONITOR(S) WILL NOT DISCONNECT A CALL. TO DISCONNECT A CALL YOU SHOULD PRESS THE DISCONNECT KEY.

Correcting keying mistakes

To delete the last digit (or character) entered, press the **Delete** key.

* - ISDN indicates both ISDN-BRI, ISDN-PRI, Leased E1/T1 and External Networks.

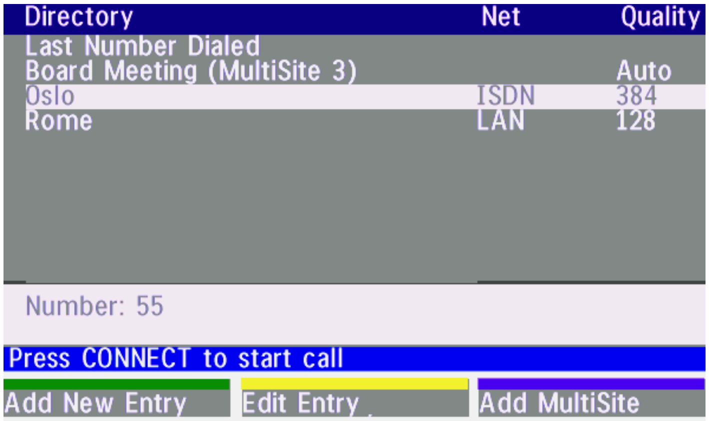
Directory

The directory is a local phone book that stores up to 100 directory entries including the last number dialed. The entries are sorted alphabetically. The entries can be point-to-point entries or MultiSite entries (see menu below). The MultiSite entries will not be displayed when you are in a call.

By using the dataport file system or external management systems like the TANDBERG Management Suite, it is possible to store 200 additional entries. These entries can only be changed from the dataport or the management system.

When the system receives an incoming call and the calling party's number is found in the directory, the calling party's name will be displayed instead of the number on the status line.

Press **Directory** to bring up the following menu:



TIP When Last Number Dialed is highlighted, the second Quick key states 'Store Entry'. This makes it possible to store last dialed number.

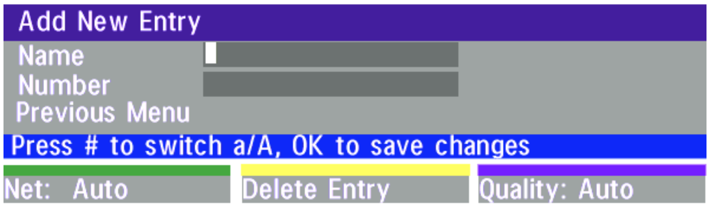
To find an entry, key in the first letter, for example T, and scroll with the up/down arrows.

TIP The left/right arrows will move one page up/down.

To dial the selected entry press **Connect**. To edit the selected number before dialing, press **OK** (only point-to-point entries).

Add New Entry

When selecting '**Add New Entry**', an empty directory entry is displayed:



1 Move to '**Name**' and enter characters using the number keys on your remote control (as on mobile phones). Use '0' to enter 'space', use '#' to switch between upper- and lower case.

2 Move to '**Number**', key in the number and press **OK**. Specify only one number. If two numbers are required, both numbers should be specified (2x64 or 2x56 calls).

3 Select '**Quality**' to specify call rate to be used.

4 Select '**Net**' to specify the network profile to be used. See 'Selecting / setting default network'.

5 Select '**Previous Menu**' to return to the Directory menu.

Delete Entry

When '**Delete Entry**' is pressed, the selected entry is deleted.

Edit Entry

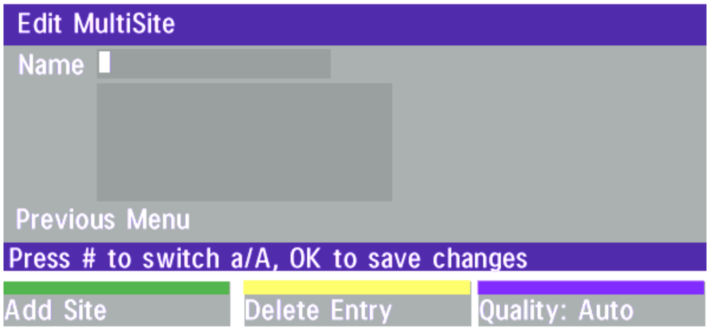
To edit an entry, highlight the entry you want to edit and press '**Edit Entry**'. Edit the entry and select '**Previous Menu**' to return to the Directory menu.

Delete Entry

To delete an entry, highlight the entry and press **Delete**.

Add MultiSite Entry

When selecting '**MultiSite Entry**', an empty MultiSite directory entry is displayed:



1 Move to '**Name**' and enter the MultiSite meeting name.

2 Select '**Add Site**' to add a site to the meeting by searching for point-to-point entries in the directory list. See below for details.

3 Select '**Quality**' to override the suggested bandwidth per site.

TIP QUALITY PER SITE: AUTO, FUNCTIONALITY

EXAMPLE: THE SYSTEM HAS MAXIMUM CAPACITY 512KBPS. TWO ENTRIES ARE ADDED, ONE WITH 384KBPS AND ONE WITH 128KBPS.
1) SINCE ALL SITES MUST USE THE SAME BANDWIDTH, QUALITY PER SITE WILL BE 128KBPS.
2) IN ADDITION, MAXIMUM BANDWIDTH PER SITE CANNOT EXCEED THE TOTAL BANDWIDTH AVAILABLE DIVIDED BY THE NUMBER OF SITES. IN THIS CASE, THE MAXIMUM BANDWIDTH PER SITE CANNOT EXCEED 512/2=256KBPS. IF THE BANDWIDTH IN 1) IS HIGHER THAN THIS BANDWIDTH, THE 'QUALITY PER SITE' SETTING MUST BE REDUCED TO CORRESPOND WITH THE TOTAL CAPACITY OF THE SYSTEM.

---

4 When finished, select '**Previous Menu**'.

Add Site

Highlight the entry you want to add to the meeting and press **OK**. If you do not find the entry you need, select '**Add New Entry**' to add an new point-to-point directory entry.

NOTE GLOBAL ENTRIES WILL NOT BE AVAILABLE FOR FOR MULTISITE ENTRIES.

General use

Adjusting volume

Press the **Volume** keys to adjust the volume level. An on-screen indicator will show the current level.

View outgoing video (selfview)

Press the **Selfview** key to view your outgoing video.

To change the image being viewed on the monitor during a call press **Selfview** until the desired image is shown (far end/selfview/still image or Duo Video).

Press **Move PIP** to move your selfview as a Picture-in-Picture to different corners of the screen or to switch it off.

Microphone on/off

To mute your microphone during a call, press **Mic Off**. An on screen indicator will appear when the microphone is off. Pressing **Mic Off** one more time will activate the microphone again.

TIP MIC OFF WILL MUTE AUDIO INPUTS MIC1-3 AND AUDIO4. IT WILL NOT MUTE AUDIO FROM THE AUX AND VCR INPUTS.

Do Not Disturb / Sleep Mode

Press any Quick key when not in a call to activate the Quick Menu.

When Do Not Disturb is activated, the system will not accept any incoming calls. The caller will hear a busy tone when calling this unit. A status line will indicate when Do Not Disturb is active.

When Sleep Mode is selected, the following quick-keys are displayed:

Pressing '**Sleep Now**' puts the monitors in sleep mode. The system will still accept incoming calls.

Pressing '**60 Minutes**' or '**3 Hours**' will delay entering sleep mode accordingly.

Pressing any key or picking up the remote control will deactivate Do Not Disturb/Sleep Mode.

To see numbers, line status etc., select '**System Info**'. For further information see 'Diagnostics' in 'Advanced use'.

Controlling the Main Camera

Moving / zooming camera

To control the Main Camera use the keys below:

for pan/tilt and

for zooming.

IF THE MENU SYSTEM IS ACTIVE, THE ARROW KEYS WILL NAVIGATE IN THE MENUS.

Focusing camera

The Main Camera is set for autofocus by default. If the Main Camera is moved (pan/tilt/zoom), autofocus will be switched On automatically for 5 seconds.

To manually focus the Main Camera, see 'Video Settings' in 'Advanced use'.

Selecting video sources

Press:

to select the video source to be transmitted to the far end.

Voice Activated Camera Positioning

Through Voice Activated Camera Positioning and the use of two or three microphones, the camera will automatically view the speaker.

Setup

Before using camera tracking, the camera positions used must be stored at presets P7 (Mic1), P8 (Mic2) and/or P9 (Mic3).

Example:
The camera position stored at P7 must be related to Mic1, therefore all participants who are located closest to Mic1 should be included in the P7 camera position etc. When camera tracking is activated and a person close to Mic1 speaks, P7 will be automatically selected.

Activating

Enable Camera Tracking by pressing ‘**CamTrack On**’ in the ‘**Preset 0-9**’ menu, which is activated by pressing the **P** button on the remote control. An on-screen indicator ‘**CamTrackOn**’ will appear.

When activating another video source (e.g., document camera), camera tracking will be temporarily disabled until you re-select MainCam or a MainCam preset.

Pressing **Mic Off** will temporarily disable camera tracking.

A Voice Detector makes the system more tolerent of noise and ensures the camera will not be moved by noise such as paper shuffling, etc.

Deactivating

Disable Camera Tracking by:

- moving the camera manually.
- activating a MainCam preset when MainCam is already activated.
- disconnecting the call.

An on-screen indicator ‘**CamTrackOff**’ will appear.

TIP The camera tracking speeds may be altered in the ‘Video Settings’ menu. See ‘Advanced use’ for further details.

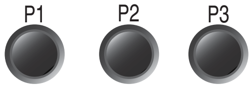
Presets

The preset buttons enable you to pre-store up to ten different settings. Each preset is able to store:

- Video source
- Camera position, pan/tilt/zoom/focus (if Main Camera)
- Audio source selection (see 'Audio Settings' in 'Advanced use')

Selecting presets

To select a pre-stored camera position, audio and video source, use the keys **P1 P2 P3** or press **P** until the on-screen indicator '**Preset 0-9**'appears and use 0-9 to activate P0-P9 presets. To exit 'Preset' mode, press **OK**.



P1-P3 are the same presets as when pressing **P** and then a number key **1-3**.

Storing presets

To store the current camera position, audio and video source:

- Press **STORE** once and wait for the on-screen indicator to appear.
- Then press one of the keys **P1 P2 P3** or a number key **0-9**.

Far end camera control (FECC)

Press the **FAR END** key until the '**FarEndCamera**' on-screen indicator is displayed.

For this feature to operate the far end must support 'Far end camera control' (H.281).

Whilst activated you will be able to control the far end's camera (pan/tilt/zoom/focus) and presets.

To control the far end camera use the keys below:

for pan/tilt and

for zooming.

Far end presets can be activated by pressing the keys **P1 P2 P3** or the number keys **0-9** to activate presets P0-P9.

Selection of far end videosources is achieved by pressing the buttons below when in FarEndCamera mode:

NOTE If you press **Doc Cam**, it is not certain that the far end document camera will be displayed. This depends on system configuration at the far end.

To prevent others controlling your camera, select '**Far End Camera Control:Off**' in '**Utilities**'.

Sending/receiving still images

When a still image is sent, received or requested, it will be stored in the graphics memory. When a new image is sent or received, the old image will be erased. When disconnecting the call, the image will be erased.

Sending a still image

- Press **Snapshot**.

- To send a still image from another video source (e.g. the document camera), select source:

TIP See '**Presentations**' menu for automatic setup of this operation.

- Press **Snapshot**.

Viewing a still image

The last sent or received still image will automatically be displayed on your screen.

- Press **Selfview** to return to normal view.

NOTE Requires '**Auto-Display Still Image: On**' in '**Presentations**'

Receiving a still image

A received still image will automatically be displayed on your screen.

- Press **Selfview** to return to normal view.

NOTE Requires '**Auto-Display Still Image: On**' in '**Presentations**'

Requesting a still image

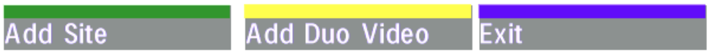
- Press **Far End** until the '**FarEndCamera**' on screen indicator is displayed.
- Press **Snapshot** . A still image from the far end is automatically displayed.

Duo Video *

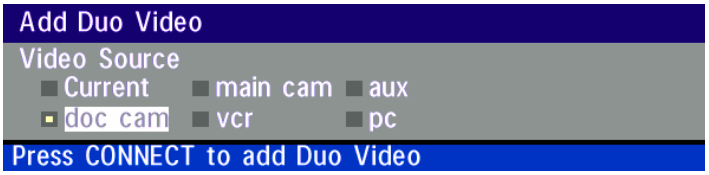
Duo Video is useful if you want to display live video from your document camera or another camera in addition to live video of yourself.

Add Duo Video

- Alt.1: Press any other video source than MainCam during a call. This will open Duo Video directly if the far end supports the automatic Duo Video functionality (requires also ‘**Duo Video Mode: Auto**’ in ‘**Presentations**’).
- Alt.2: To open Duo Video (also older versions of Duo Video), press **Connect** during a call. This will bring up the following menu:



- Select ‘**Add Duo Video**’. The following menu will be displayed:



- Select video source to transmit on Duo Video.

- Press **Connect** to add Duo Video.

NOTE **Automatic Duo Video** handles Duo Video within the same call. It is not necessary to make a new call and the connect time decreases a lot. Duo Video borrows bandwidth from the main connection. When Duo Video is closed, the bandwidth is returned to the main connection. This Duo Video is also uni-directional and hence, easier to use. When in an MultiSite call, the MultiSite can transmit this Duo Video to the other participants supporting this Duo Video version.

NOTE If the far end supports Duo Video, but not the automatic Duo Video, press ‘Quality’ to select extra bandwidth to be used by Duo Video. An extra call will be made and Duo Video will not borrow bandwidth from the main connection.

---

* - Optional feature.

End a Duo Video call

To end a Duo Video call, press **Disconnect**. Select if you want to disconnect only the Duo Video connection or the whole connection.

Controlling camera, changing video source, presets in a Duo Video call

The main monitor will always display incoming video. The 2nd monitor will display outgoing video (Duo Video in full screen / Main connection in PIP).

Pressing **Selfview** will toggle Duo Video full screen / Main source in PIP and vice versa. Pressing **Selfview** will not change anything on the main monitor.

Pressing **Move PIP** will move PIP only on the 2nd monitor.

Controlling the camera, changing video source, using presets will affect the video source currently displayed in full screen mode.

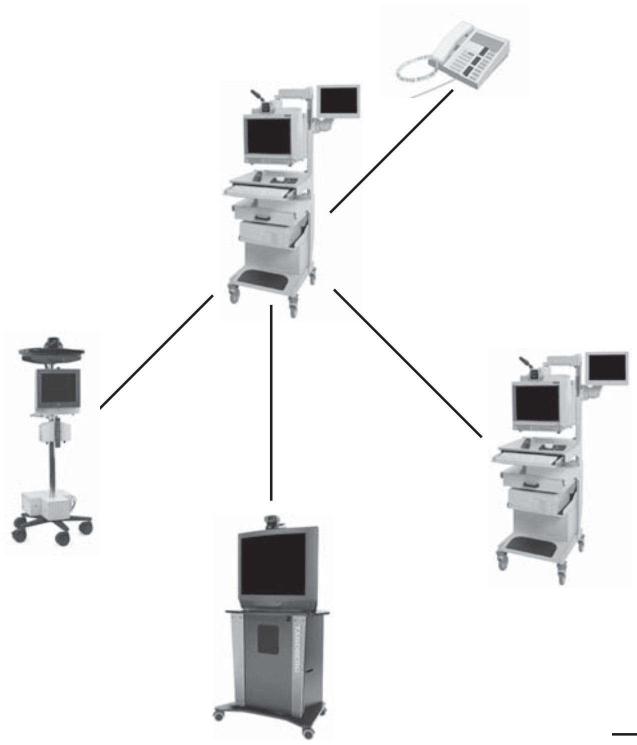
Example If Duo Video is shown in full screen on the 2nd monitor, pressing any of the video source buttons will change Duo Video source. If the main connection is shown in full screen, pressing any of the video source buttons will change the main connection source.

If both connections are selected to display the same video source, Duo Video will be closed.

MultiSite (MCU)*

The system has a built-in multipoint conference unit (MCU), MultiSite, which has the capability to establish meetings with up to 4 video sites (5 if at least one site is a telephone call, ISDN/analogue/mobile).

The video calls in a conference must be connected using the same bandwidth.



A conference can consist of any combination of ISDN/LAN sites.

It is possible to have telephone meetings with up to 5 participants.

The MultiSite supports both Voice Switched and Continuous Presence mode (see 'MCU Services' in 'Advanced use' for description of these modes).

Establishing a conference is done by first making a call to one site. When a call is established with the first site, the other sites are connected one by one.

It is possible to either dial out to the sites or the sites can dial in to the MultiSite.

TIP See 'Utilities', 'Continuous Presence' to change mode.

MultiSite - Which quality can be used on each site?

(2Mbps version)	4 sites	4 sites + 1 phone	3 sites	3 sites + 1-2 phones	p-to-p + 1-3 phones
BRI (768 kbps)	256 kbps	192	384	320	512
PRI-E1(1920 k)	512	512	768	768	1472
PRI-T1(1472 k)	384	384	512	512	1152
LAN/Mix (2304 k)	768	768 *	1152	1152 *	1920 *

Mix ISDN/LAN example: if 4 sites are connected, two LAN sites and one ISDN site can be connected on 512 kbps (2Mbps version) or 256 kbps (768 kbps version). **NOTE** - 4 sites indicates yourself + three other sites.
* - Requires 1-3 ISDN channels available.

NOTE When mixing ISDN and LAN sites, the total bandwidth limatation is the same as for the ISDN bandwidth.

* - Optional feature.

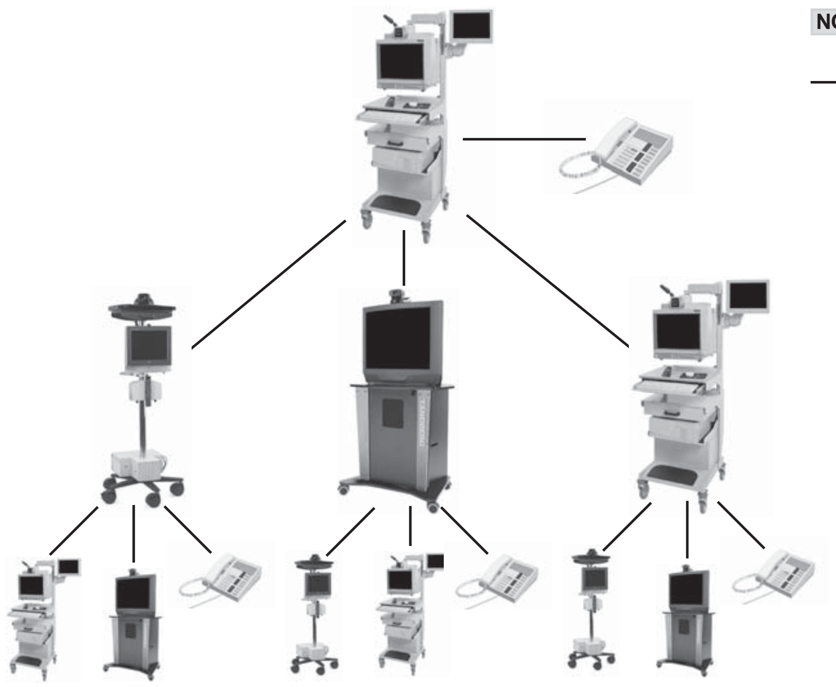
MultiSite cascading

By connecting four MultiSite systems together, it is possible to connect up to 10 video sites (including the four MultiSite sites) plus 4 audio sites (telephones), see drawing below.

The host can connect up to 3 other video systems with MultiSite functionality. The host can use Voice Switched or Continuous Presence mode.

The cascaded systems connect to two other video sites plus one audio site each. These systems will automatically run Voice Switched mode and transmit a full screen image to the host when calling on ISDN. When calling on IP, Voice Switched Mode must be selected manually.

NOTE ALL CONNECTIONS CAN BE ANY COMBINATION OF ISDN/IP.



Establishing MultiSite meetings using Directory

It is possible to pre-define meetings using Directory. All sites will then be connected automatically instead of having to add one by one site.

- Press **DIRECTORY**.
- Highlight a MultiSite entry and press **CONNECT.**

See 'Directory' section for further information.

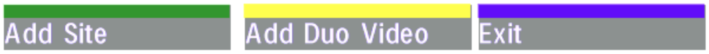
Adding an extra site - dial out

First establish a normal point-to-point call. It is recommended to plan the bandwidth usage before making the first call so that you do not run out of bandwidth.

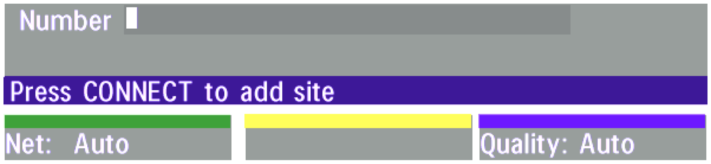
Example: If the system has 512kbps available and you want to connect 3 sites in addition to the host, 128kbps should be selected for the first call. The system will then automatically use 128kbps when connecting the other sites.

When the first site is connected, add a site to the conference using the following procedure:

- Press **Connect** to bring up the following menu:



- Press '**Add Site**' to bring up the MultiSite dial menu.



NOTE If the MultiSite system does not have enough bandwidth to add another site, the system will automatically downspeed to allow an additional site to be added to the conference. Requirement: Far End must support Downspeed and must have enough bandwidth.

TIP Connect the system with the lowest bandwidth first in order to optimize connection time.

- Enter the number to call.

The Quality will, by default, be the same as used by the first call. To place a telephone call instead of a video call, press '**Quality**' and select '**Teleph**' in the Quality menu.

To use another network operator, press '**Net**' and select operator in the Net menu.

- Press **Connect**

TIP It is possible to connect several telephones, e.g. 2 video systems + 3 telephones (a total of 5 sites).

Adding an extra site - dial in

To dial in to the MultiSite on **ISDN-BRI**:
- Site 2 must dial MultiSite Number 2.
- Site 3 must dial MultiSite Number 3.

TIP To find the dial-in numbers for the MultiSite, press '**Menu**' and '**System Info**'

To dial in to the MultiSite on **ISDN-PRI**:
- Dial the main number of the system ('**My ISDN Number**'). All sites can dial the same number.

To dial in to the MultiSite on **IP**:
- Dial the IP Number or the IP Address of the system ('**My IP Number**'/'**My IP Address**').

When the MultiSite receives an incoming call, the following menu is displayed:

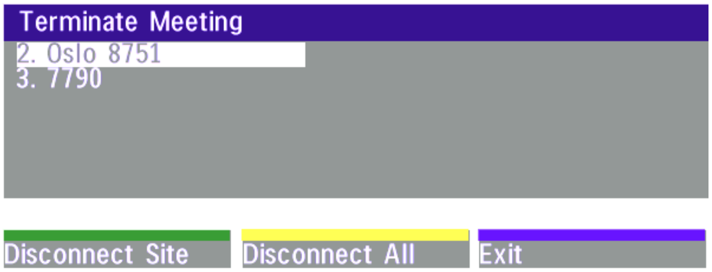
- Pressing **Connect** is equivalent to pressing '**Accept**'.
- Pressing **Disconnect** is equivalent to pressing '**Reject**'.
- Pressing '**Do Not Disturb**' will disable the MultiSite from answering more incoming calls during the current conference. The calling party will receive a busy signal.

Disconnecting sites from a conference

To disconnect a site or end the conference, press **Disconnect**.

- Select site and press **Ok** or '**Disconnect Site**'.

To end the meeting press '**Disconnect All**'.



NOTE Each system will be identified by a System Name (if supported) and the number of the far end.

PC Presenter

Plugging a PC into the system is made extremely simple through the PC Presenter, avoiding the need for any additional hardware such as a projector, PC/Video converter or extra cables.

- Start your PC.
- Press **Pc** on your remote control.
- Press **Selfview** until the indicator 'Selfview' is displayed on your main monitor (single monitor system) or until you see the PC image on the second monitor.

If no PC image is displayed on your monitor, make sure that your PC transmits the image to the VGA Output, and that the PC transmits a supported VGA-format (see tip below). Consult your PC-operating manual to see how to transmit a VGA image from your PC (typically: Fn+F5).

VGA-formats supported (VESA compliant)	
·640X480	60,72,75,85 Hz
·800X600	56,60,72,75,85 Hz
·1024X768	60,70,75 Hz

PC SoftPresenter *

PC SoftPresenter is used to display PC images on your system. The system and your PC must be connected to a LAN. In addition, VNC (Virtual Network Computing) server software must be installed on the PC.

NOTE 'PC: VNC' must be set in 'Video Settings'.

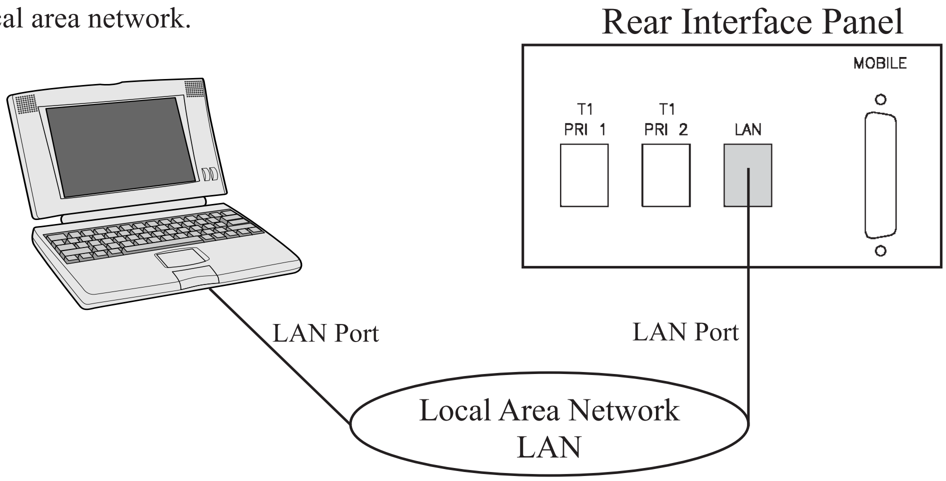
To show the PC image:
- Start the VNC software on your PC.
- Press **Pc** on your remote control. Use UP/DOWN to activate PAGE UP/PAGE DOWN on the PC. For setup information and details, see 'VNC Settings' in 'Advanced use'.

* - Optional feature.

Web-interface

It is possible to access and maintain the system remotely via a local area network (LAN) using a standard Web-browser.

Connect your system to a local area network.



Configure your codec:

- Press MENU, select '**Terminal Settings**', '**LAN Settings**'
- Specify IP-assignment '**DHCP**' or '**Static**'. If DHCP is selected no other settings are needed. If Static is selected, '**IP-address**', '**IP-subnet mask**' and '**Gateway**' must be specified.

Example:

IP-assignment:	Static
IP-address:	196.9.200.129
IP-subnet mask:	255.255.255.0
Gateway:	196.9.200.21

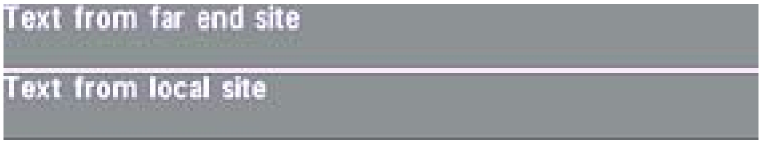
NOTE THE SYSTEM MUST BE RESTARTED BEFORE CHANGES IN THE 'LAN SETTINGS' MENU CAN TAKE EFFECT.

See 'LAN Settings' in 'Advanced use' for further information.

- Start your Web-browser. In the address field type the IP-address of the codec. The Web-page of the codec will be shown.

Text Chat / Closed Captioning

While in an ISDN or IP call to another system supporting Text Chat (T.140), select 'Text Chat' from the Web-page of the codec. Enter text in the window displayed. When selecting 'Send Text', the text will be displayed on the local and far-end monitor as shown below:



The local Text Chat window can be closed manually from the Web-interface by pressing 'Close Window' or it will close automatically after a few minutes without activity.

Streaming

To view streaming, select 'Streaming' from the Web-page of the codec. See separate 'Streaming' section in this manual for further information.

T.120 and other PC applications

A PC can be connected to the system using a serial cable. This will enable interactive editing, file transfer and application sharing between two computers.

Appropriate communication software should be used (for example: Microsoft NetMeeting, Intel ProShare Premier, Windows HyperTerminal, Procomm Plus and so forth.)

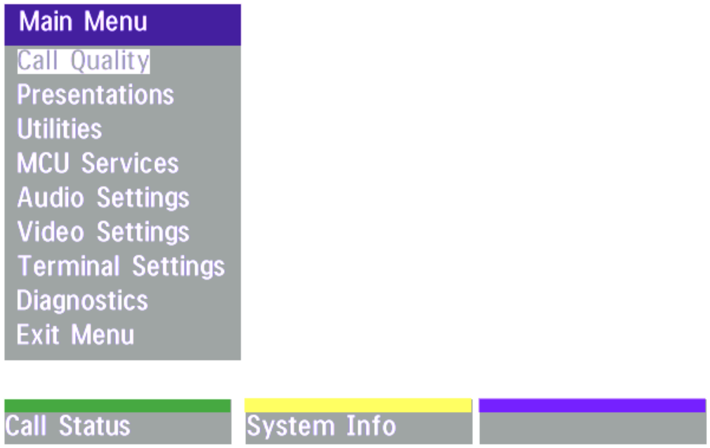
The system has been specially designed to work with interactive programs and includes a data channel that can send and receive data to and from the far end at speeds of up to 38,400 baud.

Advanced use

Main menu

The menu system can be used to select available functions and utilities for the system.

To enter the menu system and the main menu, press the **MENU** key. You may leave the menu system at any time by pressing the **MENU** key.



TIP	A MENU STRUCTURE MAP IS PROVIDED IN THE SECTION 'MENU STRUCTURE' AT THE FRONT OF THIS MANUAL.

NOTE	IN THE FOLLOWING MENU DIAGRAMS THE DEFAULT SETTINGS ARE HIGHLIGHTED.

To navigate through the menu system, use the cursor keys to move the highlighted bar to the desired sub-menu or choice.

To confirm a highlighted selection, press **OK**.

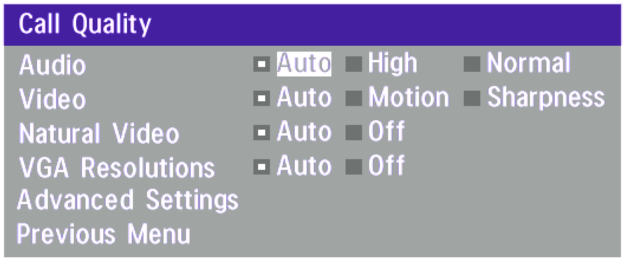
To return to the previous page, press the ***** key or select '**Previous Menu**'.

Select '**Call Status**' to view technical information regarding the current call.

Select ' **System Info**' to view system numbers, line status, software version and other useful information.

Call quality

The Call Quality menu allows you to select the preferred quality of your call.



NOTE Due to actions or limitations at the far end you may not always be able to achieve the selections you want.

TIP Auto
1-4 channels: G722.1 is selected.
5 -30 channels: G722 is selected.

Audio

Auto	Optimized audio quality depending on bandwidth.
High	High audio quality (G722) regardless of bandwidth.
Normal	Telephone quality (G728) regardless of bandwidth.

Video*

Auto	Will select 'Motion' or 'Sharpness' depending on selected video source**.
Motion	Optimized for smooth motion video for all video inputs.
Sharpness	Optimized for sharp video for all video inputs.

Natural Video

Auto	Interlaced video capabilities (ICIF) will be transmitted and enabled.
Off	Interlaced capabilities will not be transmitted. Useful if far end can not handle these capabilities.

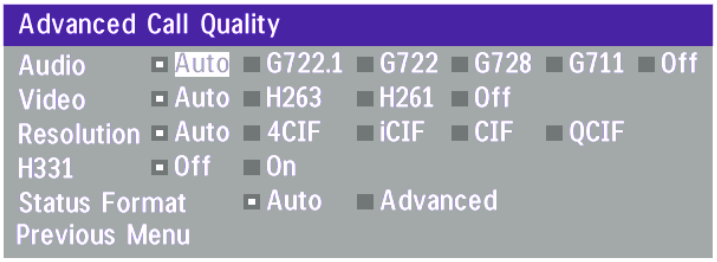
VGA Resolutions

Auto	VGA capabilities (VGA/SVGA) and SIF capabilities will be transmitted and enabled.
Off	VGA capabilities will not be transmitted. Useful if far end can not handle these capabilities.

TIP SIF capabilities will enable better video quality for NTSC systems (SIF: 352x240, ISIF: 352x480, 4SIF: 704x480).

* - If option 'Presenter' is not installed or if H263 is not used, only CIF resolution will be used for all selections.
** - MainCam/Aux/VCR will select 'Motion'. DocCam/PC will select 'Sharpness'.

Advanced call quality



NOTE The selections made in this menu will override the selections made in the 'Call Quality' menu. If 'Auto' is selected, the settings in 'Call Quality' will be used.

Audio

Auto	The setting of '**Audio: Auto/High/Normal**' in '**Call Quality**' will be used.
G.722.1	Compressed high quality audio (7 kHz).
G.722	High quality audio (7 kHz).
G.728	Compressed normal quality audio (telephone quality, 3.1 kHz).
G.711	Normal quality audio (telephone quality, 3.1 kHz).
Off	No audio is transmitted.

Video

Auto	Optimized video quality depending on available bandwidth.
H.263	Bandwidth efficient video compression and decompression.
H.261	Normal video compression and decompression.
Off	No video is transmitted.

TIP Resolution, Auto functionality (if supported by far end):
When '**Video: Motion**' :
Low bandwidths: CIF, SIF
High bandwidths: iCIF,iSIF
When '**Video: Sharpness**' :
4CIF, 4SIF, VGA, SVGA

Resolution

Auto	The setting of '**Video: Auto/Motion/Sharpness**' in '**Call Quality**' will be used, see tip above.
4CIF *	Digital Clarity (704 x 576 pixels), only for H263.
iCIF	Natural Video (352 x 576 pixels for PAL, 352x480 pixels for NTSC), only for H263.
CIF	High resolution video (352 x 288 pixels).
QCIF	Low resolution video (176 x 144 pixels)

H.331

Off	Standard two-way communication with quality negotiation between both sides.
On	Used when broadcasting a video conference from one site to many others, e.g. via satellite, where there is no possibility to negotiate quality between the receivers and the originator due to one-way communication.

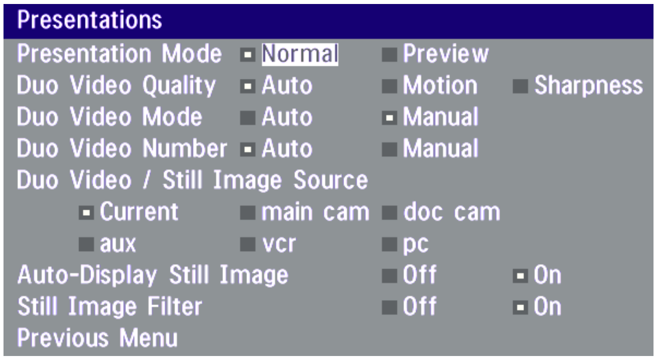
Status Format

Provides call quality feedback on the status line.

Auto	Video off/on, Audio off/normal/high
Advanced	Shows video/audio standards (Example: Video: H261 CIF, Audio: G722).

* - Requires option 'Presenter'. To check which options are installed, see the 'System Info' menu in 'Diagnostics'.

Presentations



Presentation Mode

To send a still image immediately after pressing SNAPSHOT select ‘**Presentation Mode: Normal**’.

To preview the image before it is transferred as a still image, select ‘**Presentation Mode: Preview**’. When pressing SNAPSHOT you will be allowed to view your still image, e.g. from the document camera, before sending it as a still image by pressing SNAPSHOT again. The far end will not see the still image while you are adjusting it.

Duo Video Quality *

Auto: Optimized video depending on selected video source and bandwidth in use**.

Motion: Duo Video is optimized for smooth motion video. This mode is ideal if the image from two W.A.V.E. cameras should be simultanously transmitted to the far end.

Sharpness: Duo Video is optimized for sharp video, Digital Clarity. This mode is ideal when using a document camera or a PC on Duo Video. If the far end does not support 4CIF live video, CIF will be selected.

Duo Video Mode *

Auto: Pressing any video source during a call will automatically open Duo Video (if the far end supports the automatic Duo Video functionality).

Manual: Duo Video must be opened by pressing CONNECT during a call and selecting ‘**Add Duo Video**’.

Duo Video Number***

Auto: When adding Duo Video in a conference, Duo Video is connected automatically if supported by the far end.

Manual: When adding Duo Video in a conference and connected towards a system with no Duo Video capabilities, enter the Duo Video Number into the ‘Number’ field in the ‘Add Duo Video’ menu. This can be the number to another system (only video will be transmitted to the system receiving Duo Video).

Duo Video / Still Image source

Select which video source Duo Video transmits.

If you want the document camera to be the default source when using Duo Video / still images, select ‘**Duo Video / Still Image source: DocCam**’.

To use the same video source as on the first connection for Duo Video / still images, select ‘**Duo Video / Still image source: Current**’.

* - Requires option ‘Presenter’ and H263 video. To check which options are installed, see the ‘System Info’ menu in ‘Diagnostics’.
** - 4CIF: PC and DocCam, otherwise CIF.
*** - Requires option ‘Presenter’. To check which options are installed, see the ‘System Info’ menu in ‘Diagnostics’.

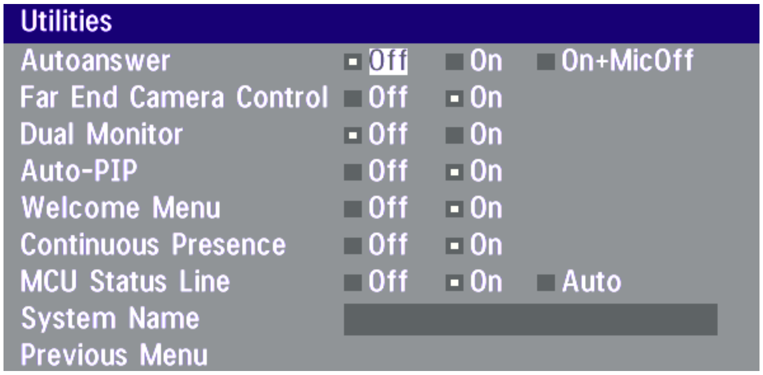
Auto-display still image

Select On to automatically display a received still image. If this selection is Off, you will have to press **Selfview** to display a still image.

Still image filter

Select On to remove any instability in the high quality still image.

Utilities



Autoanswer

On: The system will automatically answer all incoming calls.

On+MicOff: The system will automatically answer all incoming calls and switch the microphone off when the call is connected. Press **MicOff** to switch the microphone on.

Off: You must manually answer all incoming calls by pressing the **Connect** key.

Far end camera control

On: The far end will be able to:

- Control your camera
- Select your video sources
- Activate your presets
- Request still images

Off: None of the four features above on the local system can be accessed by the far end, however <u>you</u> will still be able to control the camera on the far end.

Dual Monitor

On: Selfview, still images and Duo Video will be displayed on the 2nd monitor.

Off: The 2nd monitor shows Selfview only.

Auto-PIP

On: Your selfview will automatically be displayed (as a Picture-in-picture) whenever the camera position or video source is changed. Picking up the remote control will also display your selfview.

Welcome Menu

The Welcome menu can be shown when the system is not in use, and when sleep-mode is not activated.

On: The Welcome Menu is shown when the system is not in sleep mode.

Off: The Welcome Menu is not shown.

Continuous Presence

On: The screen is divided into three or four squares, each displaying the video image of a different participant.

Off: The active site will be displayed in full screen during a MultiSite conference. Also called Voice Switched mode.

TIP To display your site in full screen when 'On' is selected, press the Quick key 'Request Floor'.

MCU status line

On: The MultiSite/MCU/DuoVideo indicators will be displayed and provide information about the conference.

Off: The MultiSite/MCU/DuoVideo indicators will not be displayed.

Auto: The MultiSite/MCU/DuoVideo indicators will be displayed for a few seconds and then timed out.

When grabbing the remote control, the indicators will be shown again.

System Name

Identifies the system:

- during an MCU conference call.
- when using the Web-interface.
- when the codec is acting as an SNMP Agent.
- towards a DHCP server.
- as an H323 ID. Other systems can call us using this name instead of IP-number/IP-address.

MCU services

A Multipoint Control Unit (MCU) enables several sites to participate in the same conference.

An MCU conference can have different modes:

Voice Switched means that the image of the person currently speaking will be broadcast to all the other conference participants. This will remain the case until another participant starts to speak.

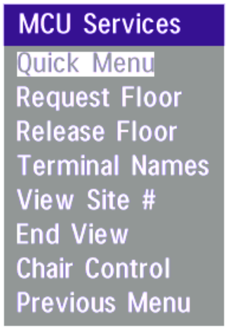
Continous Presence shows several participants on the same screen at the same time.

Chairman Control functionality enables one participant to control the meeting by selecting which of the conference participants is to be broadcast to the other participants.

NOTE This system has as an optional built-in MCU, MultiSite, which supports up to 3 video calls (4 sites) and one telephone call. The MultiSite supports both Voice Switched and Continuous Presence mode, see section 'MultiSite'.

The system can also control external MCUs in a very flexible manner using the functions described below.

TIP During an MCU conference, a status line will provide information about the conference. To remove this status line, select '**Utilities**', '**MCU Status Line: Off**'.



Quick Menu

When connected to an MCU

TIP PRESS ANY QUICK KEY WHEN IN A MULTIPOINT CONFERENCE TO ACTIVATE THE QUICK MENU.

This menu provides access to the most commonly used MCU functions.

If ‘ **Request Floor**’ is selected, ‘Request Floor’ will change to ‘Release Floor’.

If ‘ **View Site#**’ is selected, ‘View Site #’ will change to ‘End View’.

Selecting ‘**Take Chair**’ will send a request to take chair. If granted, the Quick keys will be:

If ‘**Floor to Site#**’ is selected, ‘Floor to Site#’ will change to ‘Rel. Floor To Site’.

If ‘**Release Chair**’ is selected, you will return to the original Quick menu.

When MultiSite

If ‘**Voice Switched**’ is selected, ‘Voice Switched’ will change to ‘Cont. Presence’. This setting can also be changed in the ‘Utilities’ menu.

Request floor

When requesting the floor, the MCU will broadcast your video in full screen to all other participants in the conference. If the MCU conference has a chairman, a floor request is sent to the chairman..

You will remain ‘On Air’ until either you select ‘**Release Floor**’ or the chairman decides to release the floor to another participant.

Release floor

You choose ‘**Release Floor**’ to take you ‘Off Air’. You should do this when you wish to make the floor available to the other participants in the conference.

Terminal Names

Allows you to see the site numbers or name (if supported) of other sites connected in the conference.

View site # *

Allows you to view any participant in the conference other than the participant currently ‘On Air’.

End view

Allows you to stop viewing the site previously chosen with ‘**View Site #**’, and returns your view to the site that is currently ‘On Air’.

TIP ‘**VIEW SITE**’ AND ‘**END VIEW**’ CAN BE USED BY ALL CONFERENCE PARTICIPANTS.

Chair control *

TIP In order to make use of Chair Control features the MCU must support Chair Control (H.243).

You select ‘**Chair Control**’ and ‘**Take Chair**’ to assume the role of chairman of the ‘meeting’. As chairman, you may control which site you and the other sites see.

Take chair

Allows you to request chairmanship of the conference. If no one else is currently chairman the MCU will give you the chair.

Release chair

Allows you to relinquish the privileges of chairmanship of the conference.

Floor to site

Allows the chairman to select which of the conference participants is to be broadcast to all other participants.

Release Floor To Site

Allows the chairman to release the floor.

Disconnect site

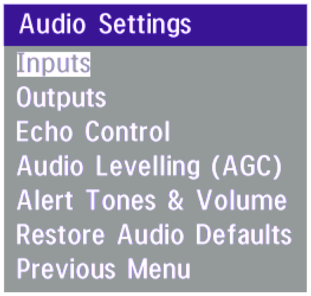
Allows the chairman to disconnect any participant in the conference.

Terminate meeting

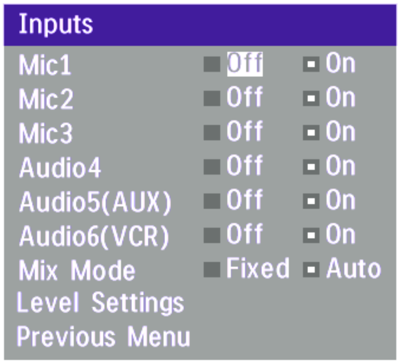
Allows the chairman to terminate the conference altogether.

* - NOT supported by the MultiSite

Audio Settings



Audio Inputs



By default, all inputs are enabled. Just plug in an audio source and it is active. Audio inputs that are On will automatically be mixed. Select Off to prevent audio/noise from unused inputs or if you want to disable a specific input. The activated audio sources are stored on presets.

Mic 1,2 and 3 are intended for electret type microphones. The microphone inputs are balanced with 24V phantom power.

Audio input 4 is intended for connection to an external microphone amplifier or an external fixed mixer.

NOTE External mixer

When using an external mixer, it is very important that this is a fixed mixer. Automatic, smart and other types of adaptive mixers might cause the echo canceller to malfunction.

Audio input 5 is intended for connection to external playback devices or to telephone add-on hybrids.

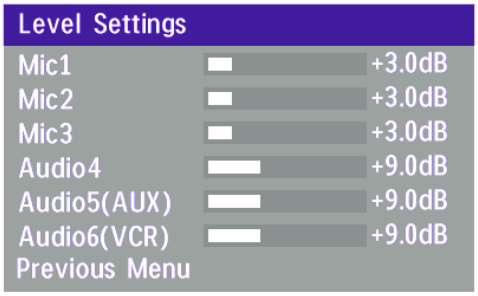
As there is no acoustic echo canceller on this input it should not be connected to any microphones. The audio entering this input will be heard from the local speaker.

Audio input 6 is intended for connection to a VCR. It can also be connected to other external playback devices. As there is no acoustic echo canceller on this input it should not be connected to any microphones. The audio entering this input will be heard from the local speaker.

Mix Mode

'**Auto**' automatically adjusts the weighting of each microphone to obtain the best possible audio and minimizes the background noise. '**Auto**' will also attenuate the VCR audio when someone talks into a microphone. '**Fixed**' will maintain a constant weighting of all microphones.

Level Settings



Adjust the audio input levels according to which external audio equipment is connected. The on-screen audio level indicator will make it easier to set the correct input level settings. The input level should be adjusted so that the average level reaches the preferred level marker. The audio inputs are adjustable in steps of 1.5 dB from 0 dB to 22.5 dB.

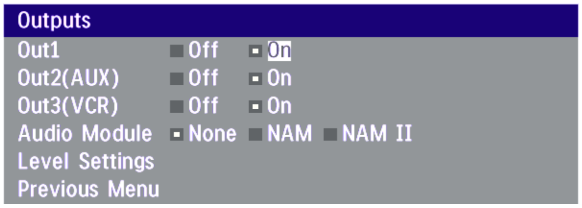
The default levels for Mic 1,2 and 3 are set for use with an Audio Technica AT871 microphone in an average videoconferencing room. The gain can be adjusted correctly for a wide range of microphones.

A few examples of microphone levels are:

Audio Technica AT871	+3dB (default with system)
Audio Technica AT851R	+7dB
TANDBERG Audio Science	+19.5dB

Audio 4, 5 and 6 are set to a default level which is adhered to by most manufacturers of audio-visual equipment and is a level at which most audio-visual equipment (CD-players, VCRs) will work.

Audio Outputs



Audio out 1 is intended for connection to TANDBERG Natural Audio, televisions or audio amplifiers.

Audio out 2 is intended for connection to audio recording equipment or to a telephone add-on hybrid. The signal is a mix of audio from both the far end and local end (not from Audio in 5).

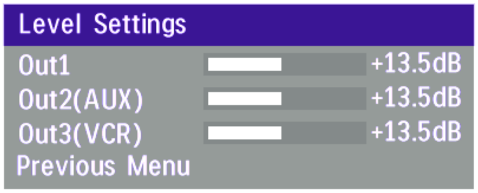
Audio out 3 is intended for connection to a VCR or other recording equipment. The signal is a mix of audio from far end and local end (not from Audio in 6).

Audio Module: Select Natural Audio Module according to the type of Audio Module installed.

NOTE NEVER CONNECT AUDIO OUT 2 OR AUDIO OUT 3 TO A LOUDSPEAKER PLACED IN THE SAME ROOM AS THE MICROPHONES CONNECTED TO THE SYSTEM. DOING THIS WILL CAUSE "HOWLING" AND POSSIBLE DAMAGE TO THE SPEAKER SYSTEM.

If an output is '**Off**', no audio will be sent to that output.

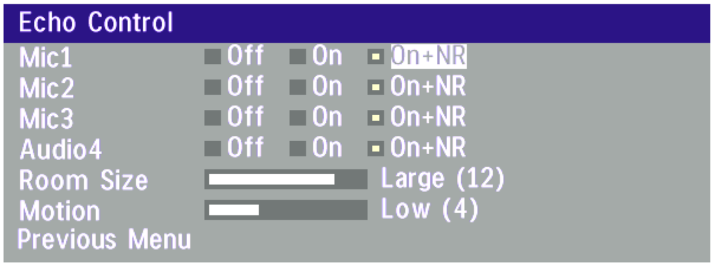
Level Settings - Outputs



Adjust the audio output levels according to the parameters of the external audio equipment connected. These levels should only be adjusted when installing new audio equipment. The default settings are correct for the TANDBERG Natural Audio module and for most consumer electronics devices (televisions, VCRs, etc.).

The volume keys on the remote control adjust the level of output 1 (the speaker output). The volume control has no effect on outputs 2 and 3.

Echo Control



Each of the 3 microphone inputs and Audio input 4 have a separate echo canceller. One echo canceller per input provides more sophisticated control than having one common canceller for all microphones.

Echo control is normally set to '**On**' to prevent the far end from hearing their own audio. Once selected, echo cancellation is active at all times. The echo canceller continously adjusts itself to the audio characteristics of the room and compensates for any changes it detects in the audio environment. If the changes in the audio conditions are very significant the echo canceller may take a second or two to re-adjust.

You can choose to switch off the echo canceller for the available audio sources.

NOTE ECHO CONTROL SHOULD BE SWITCHED **'OFF'** IF EXTERNAL ECHO CANCELLATION OR PLAYBACK EQUIPMENT IS USED. IT IS YOUR ECHO CANCELLER THAT IMPROVES THE AUDIO QUALITY EXPERIENCED BY THE OTHER SITE. WHEN YOU HEAR AN ECHO OF YOUR OWN AUDIO IT IS MOST LIKELY THE FAR END'S ECHO CANCELLER THAT IS MALFUNCTIONING.

Noise Reduction

In addition to echo cancellation, the system has built-in noise reduction (NR).

NR reduces constant background noise (e.g. noise from air-conditioning systems, cooling fans etc.). In addition, a highpass filter (Humfilter) reduces very low frequency noise.

Choose **On+NR** to activate both Echo Control and Noise Reduction.

Room Size

This setting allows optimization of the echo canceller to the acoustic size of the room. Hard walls, many windows etc. might require higher settings than expected. Carpets, curtains etc. might require lower settings. Adjust the setting (NOTE: on the far end) if one of the following symptoms occur:

- There is still some echo of your own audio. Increase the setting.
- The system adapts slowly to acoustic changes in the room. Decrease the setting.

After a change, the system will need a few seconds to re-adjust.

Motion

If you experience echo caused by movements in the room, increase the value.

Automatic Gain Control (AGC) Settings

Select '**On**' to allow automatic adjustments (Automatic Gain Control) of audio levels. When '**On**', the AGC maintains the audio signal level at a fixed value by attenuating strong signals and amplifying weak signals. Very weak signals, i.e. noise alone, will not be amplified.

Example: In most conferences, the participants will speak at different levels, and be at different distances from the microphones. As a result, some of the participants will be harder to hear than others. The AGC corrects this problem by automatically increasing the microphone levels when "quiet" or "distant" people speak, and by decreasing the microphone levels when "louder" people speak.

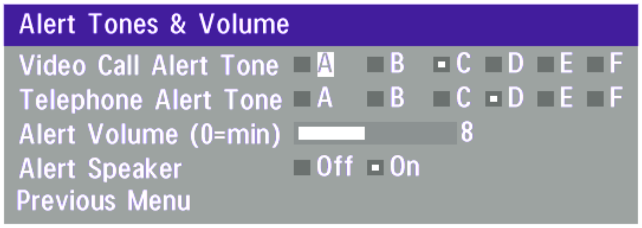
NOTE To ensure correct behaviour of the AGC, it is crucial that the levels on the input connectors are adjusted correctly using the audio input level settings. The AGC will not compensate for severe misadjustment of input levels.

When applying a weak signal in the presence of strong background noise, the leveller might amplify the background noise as well as the signal. Therefore, in noisy environments, it is advisable to turn the leveller off.

Tips for improving the echo canceller performance:

- Place all microphones as far as possible from the loudspeaker. Minimum loudspeaker-microphone distance should be 1 meter.
- Place all microphones as close as possible to the persons speaking. By using several microphones, the ratio distance loudspeaker-to-mic/mic-to-speaker can be increased. Increasing this ratio improves the echo canceller performance. Avoid distances above two meters from any participant to his/her closest microphone. If necessary, use several microphones. Also avoid placing microphones less than one meter from any person.
- Place all microphones as far as possible from noise sources.
- Reduce the volume setting. Ensure that the loudspeaker does not distort the audio.
- The echo canceller tries to estimate the echo path from the speaker system to the microphones. Moving objects change this path, therefore try to avoid moving objects. Be especially aware of large objects and objects placed close to either the microphone or the speaker system as these objects will cause severe changes to the echo path.
- Avoid putting paper sheets etc. on the microphone.
- Avoid moving the microphone or loudspeaker.
- In the event of poor echo cancelling, allow the canceller to adapt. After each change, the echo canceller requires a few seconds to adapt. Do not change the settings etc. without allowing the canceller to adapt to the new audio environment.
- In the presence of low frequency noise, enable the noise reduction (NR).

Alert Tones & Volume



To help distinguish between incoming video calls and ordinary telephone calls, different ringing tones may be selected. You may also select different volume levels for the ringing tone.

Alert Speaker

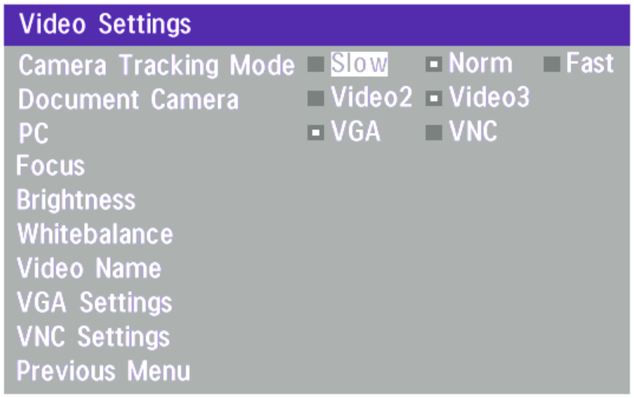
The system also has an internal, call alerting speaker.

On: The internal speaker will warn you of an incoming call even though the monitor may not be switched on.

Restore Audio Defaults

There are many audio settings. It is easy for the user to configure the codec to be unusable. Therefore it is possible to set all audio settings back to default settings by using Restore Audio Defaults.

Video Settings



NOTE The Camera Tracking Mode entry will be greyed out if not using the WAVE Camera.

Camera Tracking Mode

Select the camera tracking mode:

Slow: The system waits a while before zooming in on a single person speaking. Suitable when wide-angle images are preferred over close-up images.

Norm: Should be used in regular meetings.

Fast: The system quickly zooms in on a single person speaking. Suitable when close-ups are preferred over wide-angle images.

Document Camera

Users of a document camera with S-video output can configure the system to activate an S-video input when pressing ‘doc cam’ on the remote control.

Video2: Video Input 2 (S-video) will be activated when pressing ‘doc cam’ on the remote control.

Video3: Video Input 3 (Composite) will be activated when pressing ‘doc cam’ on the remote control.

PC

Configure what should be activated when pressing **Pc**.

VGA: Pressing **Pc** will activate the VGA input on the system (default).

VNC: Pressing **Pc** will use VNC to show images from your PC (see ‘VNC Settings’ for further information).

Focus

To manually adjust the focus select ‘**Manual**’ and use the arrow keys to adjust.

Brightness

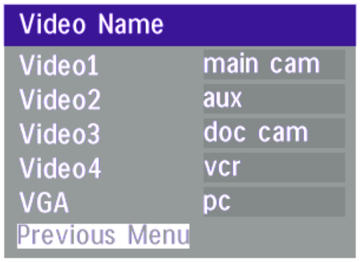
To manually adjust the brightness select ‘**Manual**’ and use the arrow keys to adjust.

Whitebalance

In Auto mode the whitebalance is continuously updated. To update the whitebalance manually, select ‘**Manual**’ and press **OK**.

TIP A white object should be held in front of the camera a few seconds before and after selecting Manual whitebalance.

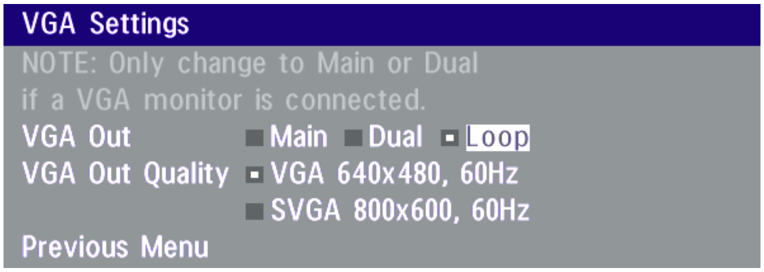
Video Name



Each video input defaults to the same name used on the remote control to select a video input.

To edit the name, use the number keys on the remote control to select letters. Press **Delete** to erase a letter.

VGA Settings



NOTE If you set 'VGA Out' to 'Main', make sure you have a VGA-monitor connected to the VGA-output on the system. If you <u>not</u> have a VGA-monitor connected, you will not be able to see the menu system!

NOTE iCIF will not be available when VGA Out is Main or Dual.

VGA Out

To enhance the local video quality, a VGA monitor may be connected.

Main: Should be used if you want to use a VGA monitor as your main monitor. Video output 1&3 will be disabled.

Dual: Should be used if you want to use a VGA monitor as your dual monitor. Video output 2&4 will be disabled.

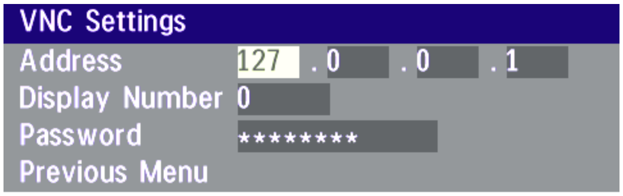
Loop: 'VGA Out' will display whatever is present on 'VGA In'. All video outputs will be enabled. The VGA monitor will act as a third monitor.

VGA Out Quality

VGA Out Quality changes the resolution of the VGA signal available on the 'VGA Out' connector at the rear of the codec.

NOTE The HCS III should have the 'VGA Out' set to dual, and 'VGA Out Quality' set to SVGA for better picture quality.

VNC Settings



NOTE **VNC Server Software Setup**

- Both the PC and the videoconferencing system must be connected to the LAN.
- A VNC server must be installed on the PC. Free software can be downloaded from http://www.uk.research.att.com/vnc
- Install the software by running the downloaded file.
- To configure the VNC Server software :
- Select “Accept Socket Connections”.
- Select “Auto” for “Display Number”. ‘Display Number’ in the system must then have the value 0.
- Enter a password in the “Password”-field. Must correspond with the ‘VNC Settings’ on your system.

Address

The IP-address of the PC with the VNC software installed. To find the IP-address of the PC, select ‘Command Prompt’ from the Startup-menu. Type ‘ipconfig’ and press ENTER.

Display Number

The display number for VNC is 0 and upwards. If you are using WinVNC, double-click on the icon on the toolbar to view ‘WinVNC properties’. This number should correspond with ‘Display Number’ in this menu.

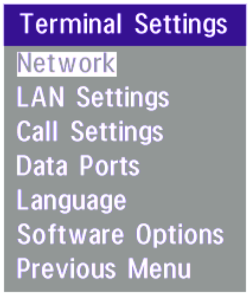
Password

Enter the same password as specified in WinVNC properties. The password will be shown as asterisk signs (*) the next time you enter the menu.

Start using VNC

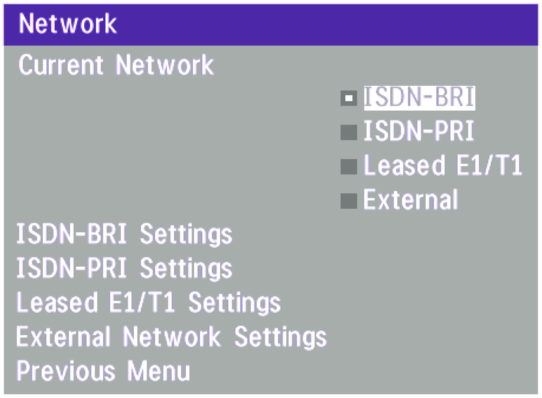
To activate VNC, press ‘**Pc**’ on the remote control. Please make sure that ‘PC’ is set to ‘VNC’ in the ‘Video Settings Menu’. See also ‘PC SoftPresenter’ section for further information.

Terminal Settings



This menu provides basic network setup for the unit and should be used when installing the system.

Network Configuration



Before using the system it is necessary to specify which network to use and define its settings.

If you want to use your system via ISDN-BRI you should select ‘**Current Network: ISDN-BRI**’ and enter the ‘**ISDN-BRI Settings**’ menu to set the BRI parameters.

If you want to use your system via ISDN-PRI you should select ‘**Current Network: ISDN-PRI**’ and enter the ‘**ISDN-PRI Settings**’ menu to set the PRI parameters.

If you want to use special networks and connect using RS449, V.35, X.21 or connect to ISDN via an external IMUX you should select ‘**Current Network: External**’ and enter the ‘**External Network Settings**’ menu to set the External Network parameters.

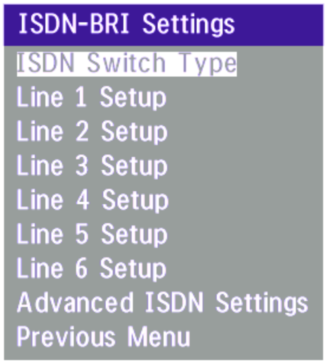
If you want to use your system via ISDN-PRI, you should select ‘**Current Network: ISDN-PRI**’ and enter the ‘**ISDN-PRI Settings**’ menu to set the PRI parameters.

If you want to use your system via Leased E1/T1, you should select ‘**Current Network: Leased E1/T1**’ and enter the ‘**Leased E1/T1 Settings**’ menu to set the Leased E1/T1 parameters.

NOTE Both ‘Leased E1/T1’ and ‘ISDN-PRI’ uses the same physical interface on the codec marked ‘E1/T1’.

If you want to use special networks and connect using RS449, V.35, X.21 or connect to ISDN via an external IMUX you should select ‘**Current Network: External**’ and enter the ‘**External Network Settings**’ menu to set the External Network parameters.

ISDN-BRI Settings



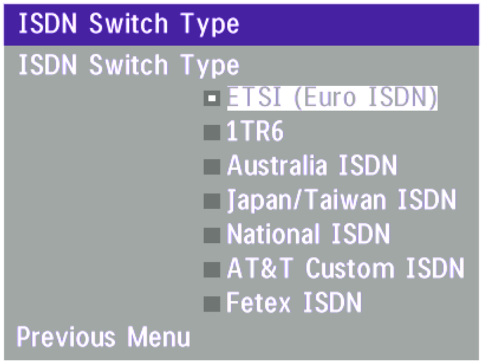
NOTE Some software versions do not support 6 ISDN lines, therefore some of the Line Setup lines may be grayed out.

NOTE If National ISDN is selected, press the Quick key '**Auto BRI Config**' to request an automatic configuration of the line & SPID settings (switch must support GR-2941-Core).

NOTE Mandatory ISDN-BRI settings
To make sure your system will work properly using ISDN-BRI, make the following settings:
- Set ISDN switch type
- Enter ISDN line numbers (+ SPIDs if required)
- Disable unused lines

ISDN Switch Type

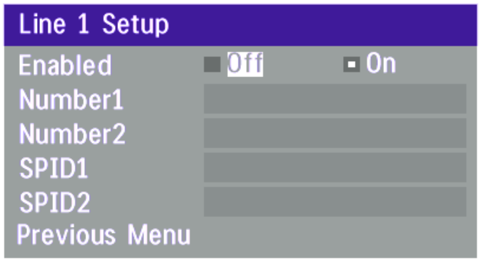
Select the type of ISDN network connected to your unit.



NOTE 1TR6 should only be used if you are operating the system behind a PABX.

Line Setup

This menu allows you to program the numbers associated with your ISDN line.

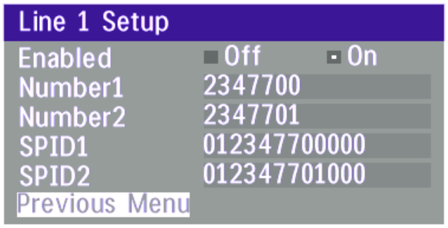


If you want to use this ISDN line, you need to set '**Enabled: On**' and enter the numbers of your ISDN line. If some of the ISDN lines are not to be used, set '**Enabled: Off**'. Line 1 should always be enabled.

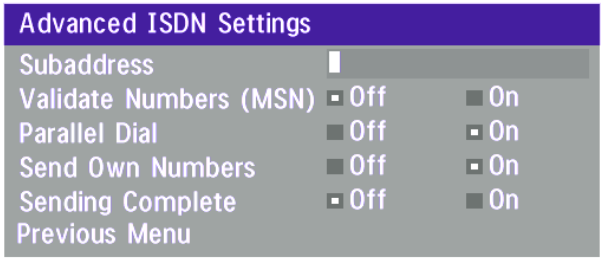
National ISDN and AT&T Custom ISDN might require SPID numbers associated with your ISDN numbers. If you have received two different SPID numbers for each ISDN line from your telephone company, you must program both.

Example:

	Numbers	**SPIDS**
ISDN BRI 1:	2347700	012347700000
	2347701	012347701000
ISDN BRI 2:	2347806	012347806000
	2347807	012347807000
ISDN BRI 3:	2347842	012347842000
	2347843	012347843000
ISDN BRI 4:	2347852	012347852000
	2347853	012347853000
ISDN BRI 5:	2347854	012347854000
	2347855	012347855000
ISDN BRI 6:	2347856	012347856000
	2347857	012347857000

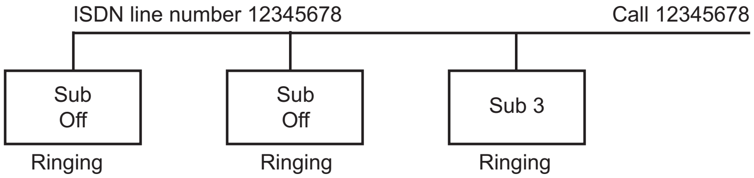


Advanced ISDN settings



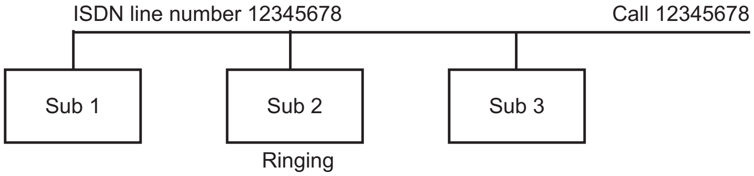
Subaddress

Using a subaddress enables you to connect up to eight ISDN terminals to the same ISDN telephone number and line. The terminals are addressed by using different subaddresses.



To call a terminal with a Subaddress, separate the ISDN telephone number and the subaddress with a ‘*’.

Example: 12345678*2 (Up to four digit subaddresses are possible)

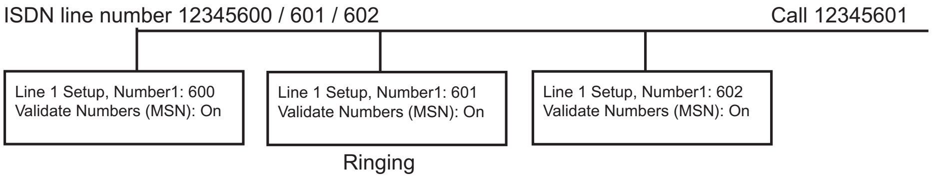


NOTE This service is has limited access on some ISDN networks.

MSN (Multiple Subscriber Number)

The use of MSN (Multiple Subscriber Number) enables you to attach different ISDN terminals, with different numbers, to the same physical ISDN telephone line. If ‘**Validate Numbers**’ is set to ‘**On**’ only calls to those numbers specified in the Line Setup menus will be answered. This service can be ordered from your telephone company.

Parallel dial



On Channels will be dialed and connected in parallel when setting up a BONDING call.

Off Channels will be dialed one by one which may increase the dialing time.

Send Own Numbers

On The system will send its own numbers to the far end.

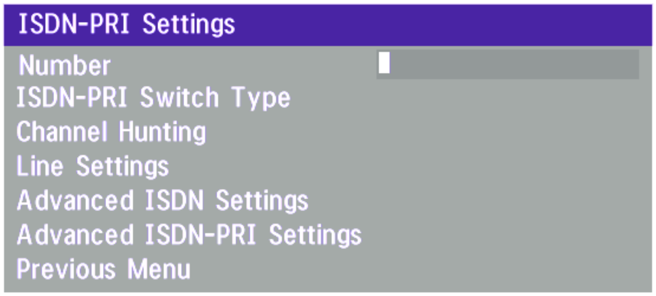
Off The system will not send its own numbers to the far end, but please note that the network may still send your numbers to the far end.

Sending Complete

On The system will send the ISDN message information element ‘Sending Complete’.

Off The system will not send ‘Sending Complete’.

ISDN-PRI Settings



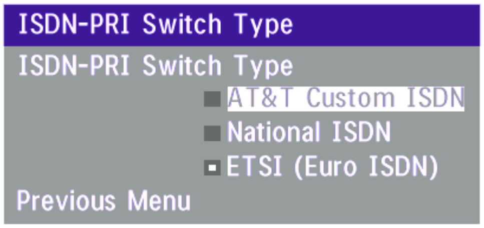
NOTE The T1 format is predefined to ESF and the line code is B8ZS. This is not configurable.

NOTE Mandatory ISDN-PRI settings
To make sure your system will work properly using ISDN-PRI, perform the following settings:
- Set PRI switch type
- Enter PRI line number

Number

Enter the main number for your PRI line. If this number is programmed and ‘**MSN: On**’ (see ‘**Validate numbers**’ in ‘**Advanced ISDN Settings**’) only calls to this number will be answered.

PRI Switch Type



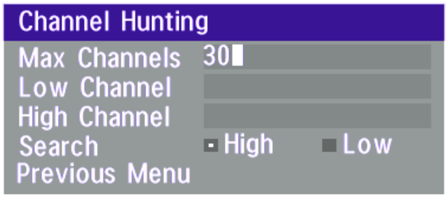
Select the type of PRI network to which your unit is connected.

Below is a list of common ISDN-PRI/T1 switches.

Type	Manufacturer	PRI Switch Type setting
ATT 4 ESS	AT&T	AT&T ISDN
ATT 5 ESS	AT&T/Lucent	AT&T ISDN or National ISDN*
DMS 100	Northern Telecom	National ISDN
DMS 250	Northern Telecom	National ISDN

* Settings will depend on configuration of the switch. PRI Switch Type is not changed when Restoring Defaults.

Channel Hunting

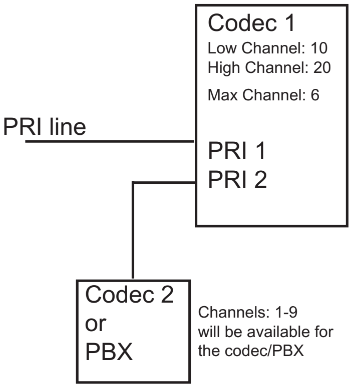


Max Channels Maximum number of channels the unit may use at any given time.

Low Channel The lowest numbered B-channel that may be used by the unit when selecting channels for outgoing calls.

High Channel The highest numbered B-channel that may be used by the unit when selecting channels for outgoing calls.

Search Specifies where the system will start searching for available B-channels for outgoing calls.



Channel hunting is normally used in conjunction with PRI daisy-chaining with TANDBERG units in the daisy-chain. If only TANDBERG units are used in the daisy-chain, default setting should be used, as these units will find available B-channels automatically.

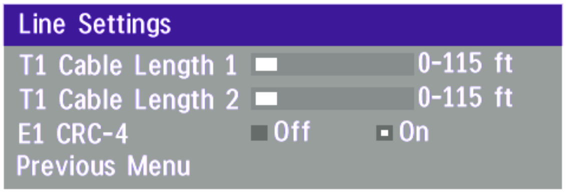
Max Channels may be used for PRIs that are provisioned for a lower number of channels.

Max Channels may be used as mechanism to ensure that there is bandwidth available to codecs further down the chain when Daisy-Chaining.

‘High Channel’, ‘Low Channel’ and ‘Search’ may be used for PRIs provisioned with specific requirements for B-channel usage.

In this example, the unit will start searching for available B-channels at channel 20, because ‘Search’ is set to ‘High’ and ‘High Channel’ is set to 20. The unit will not search for channels below 10, because ‘Low Channel’ is set to 10. Furthermore if the user tries to make an 8 channel call, the call will be established with 6 channel, because ‘Max Channels’ is set to 6.

Line Settings



T1 Cable Length 1 specifies the distance to the CSU connected to the 'E1/T1 1' port on codec 1.
T1 Cable Length 2 specifies the cascading distance from the 'E1/T1 2' port on codec 1 to the 'E1/T1 1' port on codec 2. Possible values are 0-115 feet, 80-215 feet, 180-310 feet, 280-410 feet, 375-510 feet, 475-605 feet, 575-690 feet.

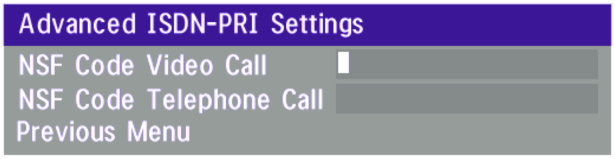
CRC-4 is used for most E1-PRI configurations. You can turn it off if not supported by your E1 network equipment.

For further information refer to appendix 3: Connecting the system to PRI/T1

Advanced ISDN Settings

This is the same menu as for ISDN-BRI. The settings will be common for ISDN BRI and ISDN PRI. Please refer to section 'ISDN-BRI Settings'.

Advanced ISDN-PRI Settings



NSF - Non Standard Facility. Your network provider may require a service selection in your ISDN configuration. Enter the Service code here.

Valid NSF service codes are from 1 to 31. Enter 0 to disable NSF service codes.

Example:
AT&T offers several digital switched services. These include SDN with service code 1 and ACCUNET with service code 6.

Example:
Below is a list of common service profiles. As these profiles may change, contact your service provider to get the correct profile.

Service profiles for AT&T:

NSF Service	
Disable	0
SDN (including GSDN)	1
Megacom 800	2
Megacom	3
Accunet	6
Long Distance	7
International 800	8
MultiQuest	16
Call Redirection Service	23

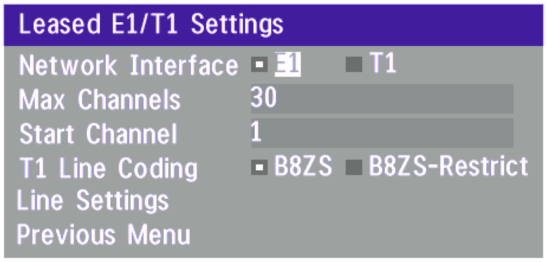
Service profiles for Sprint:

NSF Service	
Reserved	0
Private	1
Inwatts	2
Outwatts	3
FX	4
TieTrunk	5

Service profiles for MCI:

NSF Service	
VNET/Vision	1
800	2
PRISM1, PRISMII, WATS	3
900	4
DAL	5

Leased E1/T1 Settings



Network Interface

Indicates if the network is of type E1 (30 channels) or T1 (24 channels). E1 will be default for PAL versions, T1 default for NTSC versions.

Max Channels

Indicates the maximum number of channels the codec is allowed to use on the E1/T1 interface. When E1 is selected, maximum is 30 channels. When T1 is selected, maximum is 24 channels.

Start Channel

Indicates the first E1/T1 channel the codec is allowed to use. This setting might be used if the E1/T1 line is shared with other equipment.

T1 Line Coding

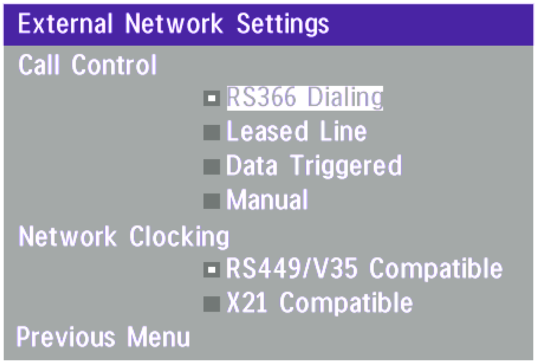
Indicates how the signals on the line should be coded. If parts of the line between the systems use restricted coding, this should be selected,

NOTE All settings must be identical on both sides of the Leased E1/T1 connection.

Line Settings

This is the same menu as for ISDN-PRI. Please refer to section ‘ISDN-PRI Settings’.

External network settings



NOTE The physical interface on External Networks is one non-standard 26 pin connector. Special cables are required.

Before using the system together with external network equipment, you must specify the network parameters on this page.

NOTE The system has support for up to 768 kbps/2Mbps using External Network (RS449/V.35/X.21) interface.

Call control

'**RS366 Dialing**' is the only dialing protocol and would normally be used together with network clocking '**RS449/V35 Compatible**' when the external equipment uses RS366 ports.

'**Leased Line**' is a non-dialing protocol and should be used when only two codecs are connected in a point to point connection. Use '**Leased Line**' when handshake signals DTR and CD are available. DTR and CD correspond to the X21 network's C and I signals.

'**Data Triggered**' mode uses TxData (transmit data), RxData (receive data) and clock signals only. Use '**Data Triggered**' when no handshake signals are available.

'**Manual**' should be used when no handshake signals are available, and the external equipment requires a constantly connected line.

TIP To make an IP call when 'Leased Line' is selected, enter a number before pressing CONNECT to activate the dial menu.

Network clocking

The network clock setting specifies the number of physical external clock signals.

Use '**RS449/V35 Compatible**' when the external equipment provides two clock signals, one for transmit and one for receive. The difference between RS449 and V35 is the cable only.

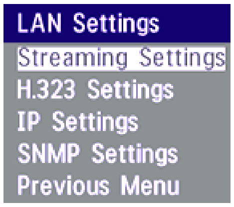
Use '**X21 Compatible**' when external equipment provides a common clock signal for both transmit and receive.

Cable Specification, V.35

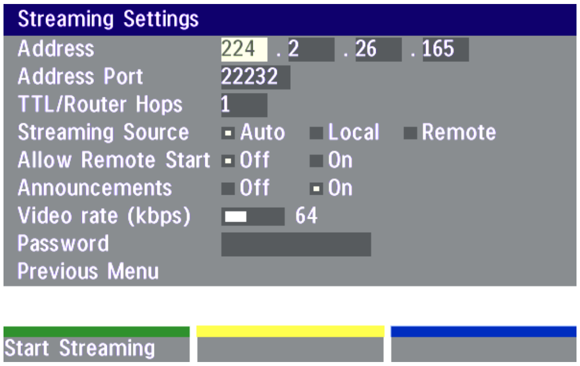
V.35/RS-366 cable

Signal Name	Female 26pin DSUB Pin number	Male 34pin Winchester Pin number	Male 25pin DSUB	Comments
Frame ground	1	A		
Signal ground	19,23	B		
TX(A), transmit data	11	P		Twisted pair
TX(B)	12	S		
RX(A), receive data	13	R		Twisted pair
RX(B)	14	T		
RCLK(A), rcv clock	15	V		Twisted pair
RCLK(B)	16	X		
TCLK(A), xmt clock	17	Y		Twisted pair
TCLK(B)	18	AA		
DTR	26	H, C		
RI	24	L, J		
RLSD	22	F		
RS366 DPR	2		2	
RS366 ACR	3		3	
RS366 CRQ	4		4	
RS366 PND	5		5	
RS366 DLO	6		22	
RS366 NB1	7		14	
RS366 NB2	8		15	
RS366 NB4	9		16	
RS366 NB8	10		17	
RS366 GND	19		7	
Cable Marking	NET	DSU V.35	DSU RS366	

LAN Settings



Streaming*



NOTE When streaming, a MultiSite or a Duo Video call can not be made.

NOTE An on-screen indicator is shown when streaming is active.

Address

Address is defined as the IP-address of a streaming client, streaming server or a multicast address. Giving an address in the range 224.0.0.1-239.255.255.255 will broadcast the stream to any host that has joined the specified multicast group. Specifying normal broadcast address 255.255.255.255 will broadcast to any members on the LAN.

Address Port

If several codecs are streaming to the same IP-address, different ports have to be used in order for the client to know which stream to receive. If the first codec streams on port 2240 and the second codec on port 2250, the client has to specify which port to listen to. Video is transmitted on the specified port, audio is transmitted on the port number 4 above the specified video port, in this case 2244 and 2254.

TTL/Router Hops

This is used for streaming data to limit how many routers the data should pass before it is rejected. If TTL is set to two, data will not traverse more than 2 router hops.

Streaming Source

Auto Enables streaming of both local and far end video. Selection of which site to be streamed is done using voice switching (the site that speaks is streamed).

Local Only the local video will be streamed.

Remote Only the far end video will be streamed.

Local and far end audio is always streamed.

Allow Remote Start

On Streaming can be started from external user interfaces like the Web-browser or Telnet session.

Off Streaming can only be started from the Video Conferencing System using the remote control, or by using the Dataport. This will prevent activation of streaming using Web browser or Telnet sessions.

* - Please contact your TANDBERG representative for further information.

Announcements

On The codec will announce to the network that it is streaming. This enables a streaming client (e.g. a PC) to connect to the codec's streaming session. Used by Cisco IP/TV.

Off No announcement packets will be transmitted.

Video Rate

Defines the Video streaming rate from the system. Range is 16kbps - 320kbps. In addition, audio (G.711) streaming rate is 64kbps, providing a maximum streaming rate of 384kbps.

Password

Entering a password will prevent unauthorized access to the streaming functionality.

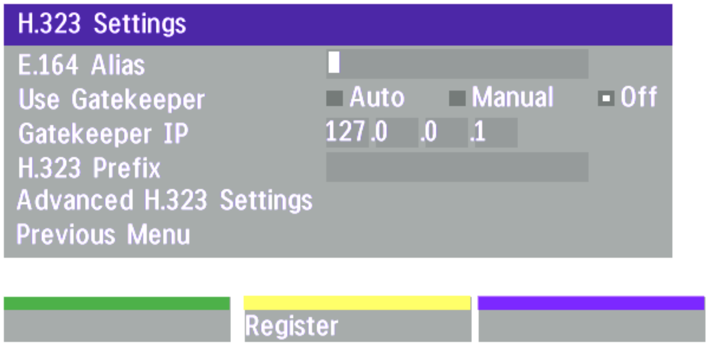
Start/Stop Streaming

By pressing the Quick Key labeled ‘ Start Streaming ‘, the Streaming session will start. To stop the stream, press the same quick-key, which will be labeled ‘ Stop Streaming ‘ while the streaming-session is active. Pressing Disconnect will also stop the streaming session.

How to view streaming

After streaming is started, an easy way to view the streamed audio/video is to start your Web-browser and enter the IP-address of the streaming system. After the Web page of the codec is shown, click on ‘Streaming’. Alternatively, enter http://<codec ip-address>/stream.sdp.

H.323 Settings



E.164 alias

This is the E.164 address of the codec. The E.164 address is equivalent to a telephone number, sometimes combined with access codes. Valid characters are 0-9,* and #.
When using a gatekeeper the codec will send a message to the gatekeeper containing both the E.164 address and the system name of the codec. The codec will not register with the gatekeeper if the E164 alias is not set.

Use Gatekeeper

Auto - The codec will automatically try to register on any available gatekeeper. If a gatekeeper responds to the request sent from the codec within 30 seconds this specific gatekeeper will be used. If no gatekeeper responds, the codec will not use a gatekeeper for making H.323 calls and hence an IP-address must be specified manually.

Manual - The codec will use a specific gatekeeper identified by ‘**Gatekeeper IP-address**’.

Off - The codec will not use a gatekeeper and an IP-address must be used in order to make an H.323 call.

Gatekeeper IP-address

This is the gatekeeper IP-address if you specify ‘**Use Gatekeeper: Manual**’.

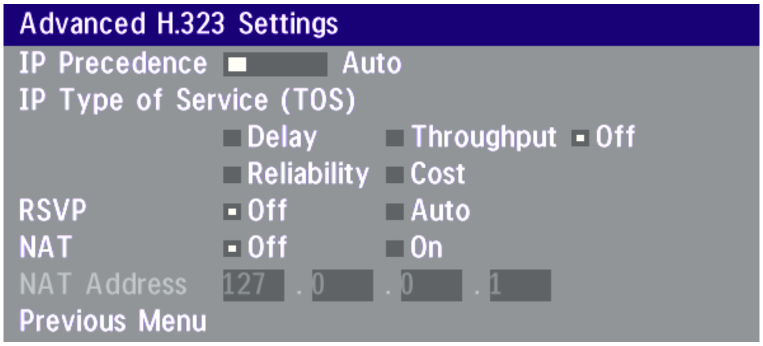
H.323 Prefix

When dialing a number prefixed with digits specified by ‘**H.323 Prefix**’, and with ‘**Net: Auto**’, an H.323 call will be placed. *Example:* H.323 Prefix is ‘555’. Dialling ‘55582’ with ‘Net:Auto’ will select LAN.

Register

Pressing ‘**Register**’ will send a gatekeeper registration request. This request will also be sent when leaving the menu.

Advanced H.323 Settings



NOTE These settings only have an effect if they are supported by your IP infra structure.

IP Precedence

Used to define which priority the system should have in the network. Higher numbers indicate higher priority. The selected value n will classify the different packets as follows: Signalling=n, Audio=n-1, Video=n-2, Data=n-3. When ‘Auto’ is selected, n has the value ‘6’.

IP Type of Service (TOS)

Helps a router select a routing path when multiple paths are available.

Delay	Tells the router to minimize the delay
Throughput	Tells the router to maximize the throughput
Reliability	Tells the router to maximize the reliability
Cost	Tells the router to minimize the cost.

RSVP

Auto	Resource Reservation Protocol enables the endpoints to request the optimal amount of bandwidth for the duration of an IP video conference.
Off	Resource Reservation Protocol is switched off.

NAT

NAT, Network Address Translation, is used in small LAN's, often home offices, when a PC and a videoconferencing system is connected to a router with NAT support. NAT support in the videoconferencing system enables proper exchange of audio/video data when connected to an external videoconferencing system (when the IP traffic goes through an NAT router).

When NAT is On, the NAT Server Address will be shown in the startup- menu: 'My IP Address: 10.0.2.1 (NAT)'

NAT Address

This must be the external/global IP-address to the Router with NAT support. Packets sent to the Router will then be routed to the codec.

In the router, the following ports must be routed to the codec's IP-address:
Port 1720
Port 5555-5560
Port 2326-2365
Please contact your TANDBERG representative for further information.

IP Settings

NOTE Changes in this menu will not have any effect before the system is restarted.

IP-assignment

DHCP (Dynamic Host Configuration Protocol) can be selected when a DHCP server is present.

DHCP: IP-address, IP-subnet mask and Gateway are not used because these parameters are assigned by the DHCP server.

Static: The codec's IP-address and IP-subnet mask must be specified in the IP-address field.

IP-address

IP-address defines the network address of the codec. This address is only used in static mode. In DHCP-mode, the assigned IP-address can be found on the Welcome Menu.

IP-subnet mask

IP-subnet mask defines the type of network. This address is only used in static mode. Your LAN-administrator will provide the correct value for this field.

Gateway

When using DHCP, the default gateway will be set automatically. If the LAN utilizes static IP addresses, IP address, subnet mask, and default gateway must be specified by the LAN administrator.

Ethernet Speed

Auto	The codec will auto-detect the speed/duplex on the LAN.
10/Half	The codec will connect to the LAN using 10Mbps speed/Half Duplex.
10/Full	10 Mbps speed/Full Duplex.
100/Half	100 Mbps speed/Half Duplex.
100/Full	100 Mbps speed/Full Duplex.

Restart

Pressing the Quick key 'Restart' will restart your system without having to use the On/Off switch on the codec. If IP-assignment is changed, it is sufficient to use this Quick key to restart the system.

SNMP Settings

SNMP Trap Host*

SNMP (Simple Network Management Protocol) is used for monitoring and configuring of different units in a network. The codec's **SNMP Agent** responds to requests from **SNMP Managers** (a PC program etc.). **SNMP traps** are generated by the agent to inform the manager about important events.

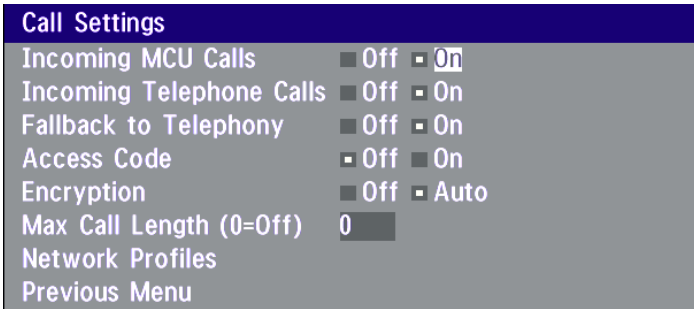
SNMP Trap Host identifies the IP-address of the SNMP manager.

SNMP Community

SNMP Community names are used to authenticate of SNMP requests. SNMP requests must have a 'password' in order to receive a response from the SNMP agent in the codec.

NOTE The SNMP Community name is case sensitive.

Call Settings



Incoming MCU calls

On: When you are in a call, the system will provide a visual/audio indication of an incoming call and ask you to accept/reject the call.

Off: The system will not accept incoming calls when you are in a call.

Incoming telephone calls

On: The system will accept incoming telephone calls.

Off: The system will not accept incoming telephone calls. This is useful to prevent incoming calls from other systems than videoconferencing systems.

Fallback to telephony

On: Enables fallback from video calls to telephony/speech calls.

Off: Disables fallback.

Access Code

On: When pressing CONNECT or any number to make a call, an Access Code menu will be shown. The user will then have to enter the correct Access Code in order to make a call.

Off: No Access Code is necessary to make a call.

Encryption*

Auto: The system will try to make ISDN point-to-point calls using encryption. If the far end system supports encryption, the call will be encrypted. If not, the call will proceed without encryption.

If the far end supports encryption, the systems will initiate encryption after the call is connected. This takes approximately 10 seconds, during which an ‘open padlock’ will be displayed. When encryption has been established, a ‘closed padlock’ symbol will be displayed.

Off : The system will not send or receive encrypted data.

Technical encryption information like encryption algorithm and encryption check code can be found in the ‘Call Status’ menu.

Max Call Length

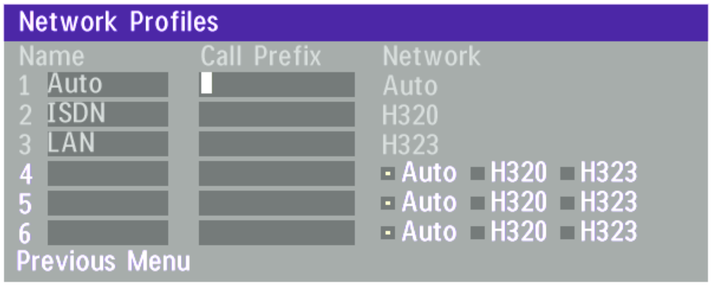
This feature will automatically end both incoming and outgoing calls when the call time exceeds the ‘Max Call Length’ specified.

Max Call Length can have the following values: 0-999(minutes), where 0 is Off.

A few minutes before the specified time is reached, a Quick-Key menu will appear. Users will be asked if he/she wants to extend the ‘Max Call Length’ that is specified:

Network Profiles

This menu defines the settings listed when pressing the Quick key ‘**Net:**’ while in the dial menu.



This menu consists of 6 network profiles, a prefix can be added for each profile. If you add a prefix to a profile, this prefix can be automatically added to the number being dialed.

NOTE EXAMPLE:
0 IS ADDED AS A CALL PREFIX TO THE 2ND PROFILE, ISDN. IF YOU ENTER 12345678 IN THE DIAL MENU AND SELECT ‘ISDN’, THE NUMBER DIALED WILL BE **0**12345678.

Using the three last profiles you can enter the name of a profile, prefix and network selection. This is useful if you have a fixed prefix to your service provider.

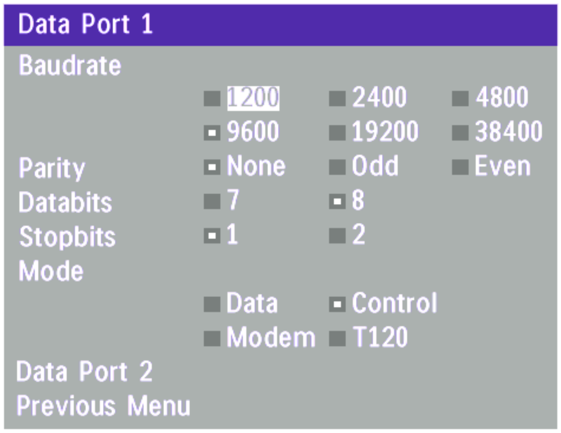
Dataport configuration

The system provides two standard RS 232 serial ports to allow a computer to be connected for data transfer and control purposes.

NOTE WHEN CONNECTING TO A PC THE CONNECTING CABLE *MUST* BE A STRAIGHT THROUGH RS232 CABLE.

Dataport 1

If you wish to connect a PC to Dataport 1, you must ensure that the PC and the system are identically configured. The available settings are:



Dataport 1 supports 4 different modes:

Data mode

Provides a transparent data channel. This channel can be used for many different purposes such as file transfer, application sharing and more. When using this mode, it is necessary to have a TANDBERG system at the far end.

Control mode

The control interface provided by the Dataport supports a subset of the Hayes command set as well as a comprehensive set of system specific commands.

This mode maintains communication with the Dataport's command interpreter at all times. All features available from the hand-held remote control can be accessed through the dataport.

Modem mode

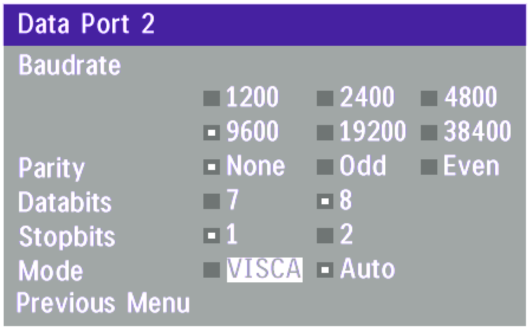
Allows you to control the system externally via a PC as in Control Mode. Once a call is established, Dataport 1 will automatically switch to Data mode. When the call disconnects, Dataport 1 switches back to Control Mode.

T.120

Provides a data channel supporting the T.120 standard for data communication. Using T.120 software on your PC, you can communicate with other T.120 systems using your PC and your system.

For more details on connecting to the Dataport, see 'Peripheral Equipment'.

Dataport 2

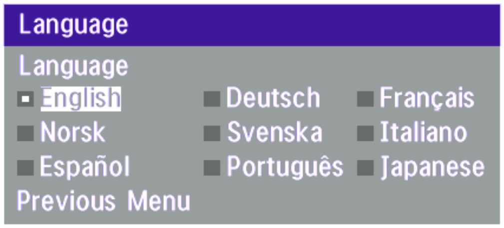


Dataport 2 is dedicated to the main camera and will not be available in standard configuration.

The Codec will automatically detect WAVE cameras. If you are using a camera supporting the VISCA protocol, select ‘**Mode: VISCA**’.

Language

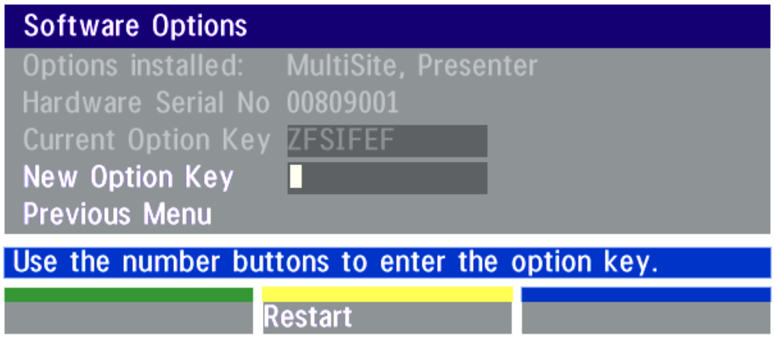
The system supports 9 different languages for its on-screen menus.



Select the preferred language, and then press OK to save.

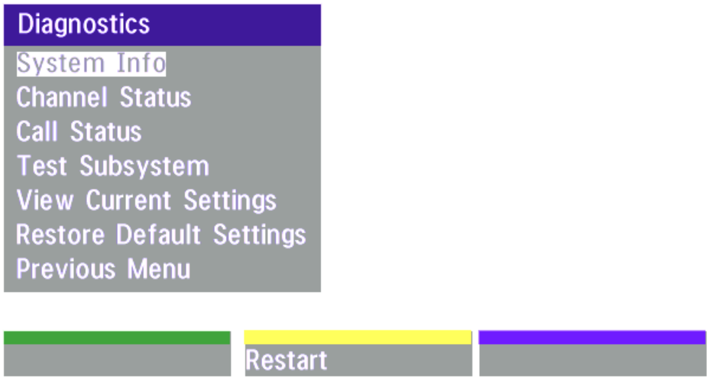
Software Options

The system requires a valid option key to activate MultiSite and/or Presenter functionality. A restart of the system is required after entering a new option key. If the option key is invalid, the original key will be used.



Diagnostics

Allows testing of individual system components and displays the current system settings.



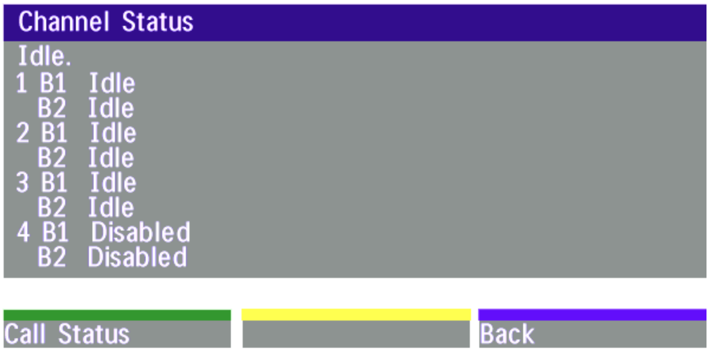
System info

Select ‘ **System Info**’ to view system numbers, line status, software version and other useful information.

Channel status

Comprehensive information about the call progress is available through the Channel Status window.
This window indicates the various stages each B-channel goes through whilst establishing a connection.

Status - BRI	Comments
Idle	the channel is idle
Calling	when calling — the network has acknowledged the call
Connected	when connection is established
Sync	when the channels are synchronised
Active	when all available channels are connected
Releasing	waiting for the network to confirm a release of the call
Released	when disconnected - the network has acknowledged the disconnection



TIP Press **Menu** and then ’**Call Status**’ to bring this menu up when not in the menu system.

The numbers used to call out to the far end are shown in the window. If an error occurs a cause code will be displayed on the right hand side of the window.

Cause codes

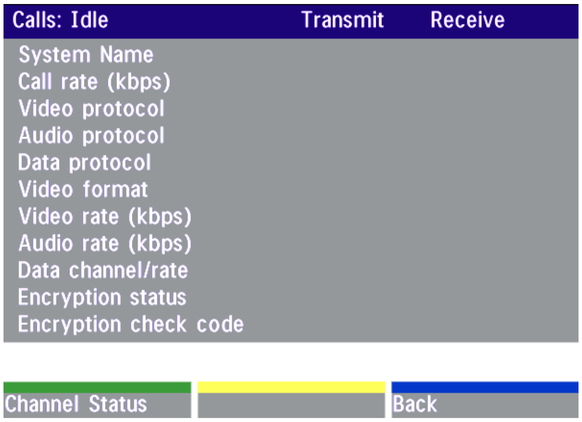
The most common cause codes (for ISDN) are:

```
1 -     Unallocated (unassigned) number
2 -     No route to specified transit network (WAN)
16 -    Normal clearing
17 -    User busy
18 -    No user responding
21 -    Call rejected
28 -    Invalid number format (incomplete number)
29 -    Facility rejected
31 -    Normal, unspecified
34 -    No circuit/channel available
41 -    Temporary failure
58 -    Bearer capability not presently available
65 -    Bearer service not implemented
69 -    Requested facility not implemented
81 -    Invalid call reference value
88 -    Incompatible destination
100 -   Invalid information element contents
102 -   Recovery on timer expiry
127 -   Internetworking, unspecified
```

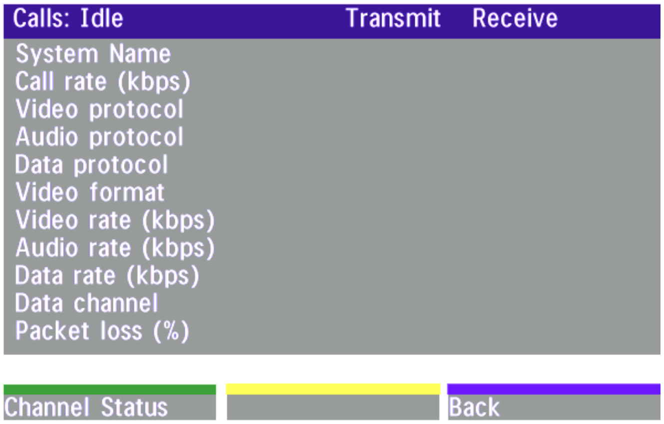
Call status

Comprehensive information about the call is available through the Call Status window. The menu has two columns, one for tranmitted and one for received audio/video/data information. If Duo Video or MultiSite is used, pressing the LEFT/RIGHT keys will show one page per connected site.

ISDN



IP



Please contact your TANDBERG representative for further information.

Restore defaults

You may restore all system settings to the factory default using this function.

NOTE This default settng will not affect your Call Directory information, Network Type, Line Setup numbers or your SPID numbers.

Test subsystem

You can test the different subsystems of your videoconferencing equipment.

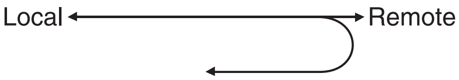
Far End Loop (ISDN only)

Set Local: This system will loop all incoming audio and video.

- The far end will see its own video and hear its own audio.
- The local side will see and hear the far end.

An on-screen indicator will indicate 'Local Loop'.

RequestRemote: A request will be sent to set the far end in loop.



- The far end will see and hear the local side (varies depending on implementation of loop functionality).
- The local side will see its own video and hear its own audio (if the far end supports loop).

If 'Far End Loop' is set to 'RequestRemote' whilst in a call and the call is subsequently disconnected, 'Far End Loop' will be set to 'Off'.

System Selftest

The system performs a check to determine internal hardware integrity. Test Network is useful when you want to check if your network connection is active.

View current settings

This window will display all the system settings. Use the arrow keys to scroll through the list.

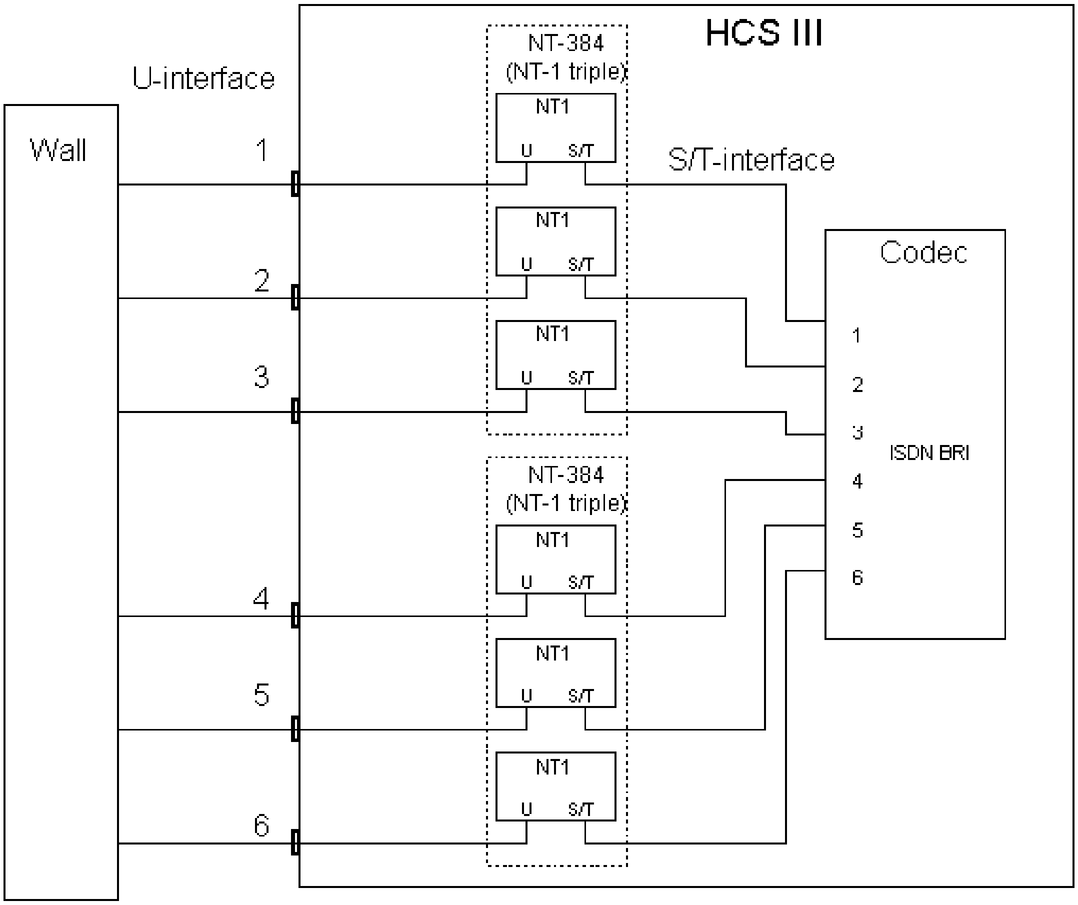
Appendix 1

Connecting the HCS III to ISDN using Network Adapters

Connecting

When network terminating units are required, Inter-Tel Inc. models NT1 or NT384 are installed within the enclosed area at the bottom of the cart, as illustrated below.

Connect the ISDN BRI cables from the sockets labelled ISDN BRI 1/2/3/4/5/6 on rear interface panel of the HCS III cart to the network provider sockets.



Configuring

The configuration of the codec is performed in the same manner as described in ISDN BRI Settings.

The NT1 should be powered up and you should check that the network is active. Please check your NT1 User Manual.

Appendix 2

Connecting the system to the Switched 56 network

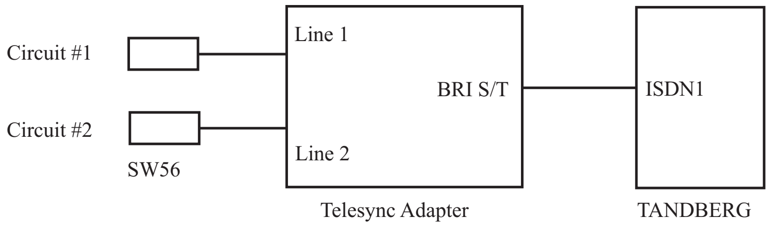
Using Telesync TS-256 SW56/ISDN adapter

Connecting the system to the SW56 network using a Telesync Adapter is described below.

NOTE: There are different Telesync Adapters for different configurations of SW56 networks. The network types tested with the system are SW56 2Wire and 4Wire.

Connecting

Connect the system ISDN1 cable to the BRI S/T interface on the Telesync Adapter. Connect the two SW56 cables from the Telesync adapter Line 1 and Line 2 to the SW56 network.



Configuration of Telesync Adapter

No configuration of the Telesync Adapter is necessary.

Configuration of the system

Select network type to 'National ISDN'.

LINE 1 SETUP

NUMBER1:	program with number from the first SW56 line
NUMBER2:	program with number from the second SW56 line
SPID1:	program with number from the first SW56 line
SPID2	Leave blank

LINE 2 SETUP

NUMBER1:	number from the third SW56 line
NUMBER2:	number from the fourth SW56 line
SPID1:	Leave blank
SPID2	Leave blank

And so on for the other lines.

How to call

Important: Use the Quick key 'Set Restrict (56k)' in the Quality menu to specify a restricted call (56k) when you dial a number.

Set Restrict (56k)

Example:

One number dialing enter:	Number:	1703111222	(56k)
Two number dialing enter:	Number:	1703111222	(56k)
	2nd:	1703111223	

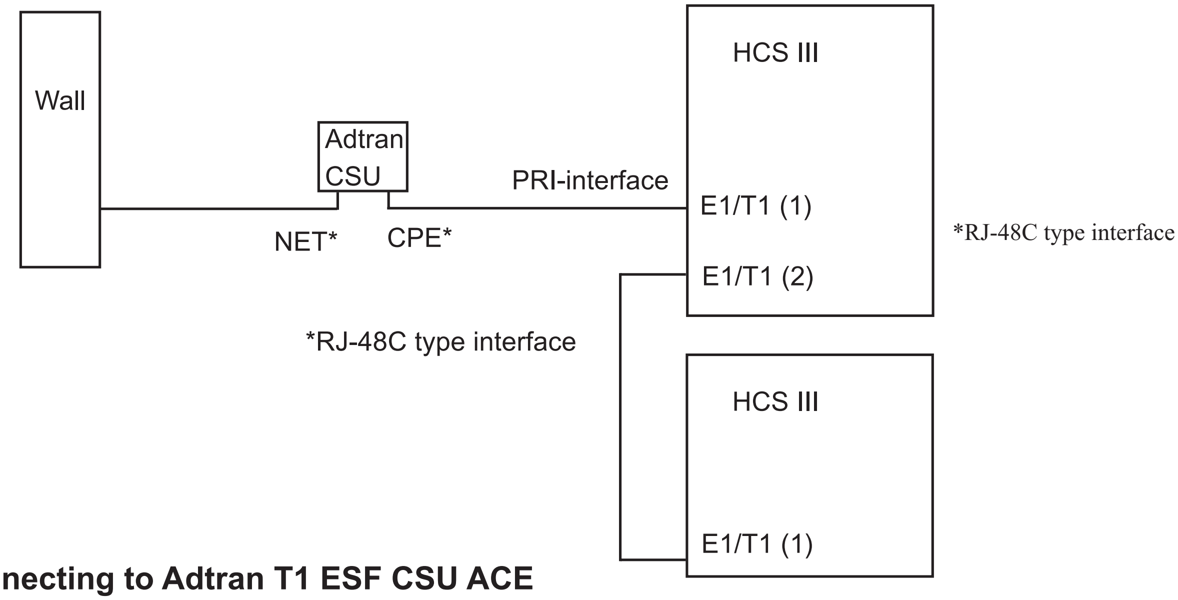
Appendix 3

Connecting the system to PRI/T1

Using CSU adapter

Connecting the system to the ISDN network via the E1/T1-interface using an Adtran T1 ESF CSU ACE will allow up to 1.54 Mbps transmission. The E1/T1-interface must be connected to a CSU approved according to IEC 60950, UL 1950 or equivalent standard.

NOTE: The PRI-line will run the AT&T 4ESS, 5ESS and National ISDN protocols in addition to Euro ISDN (E1).

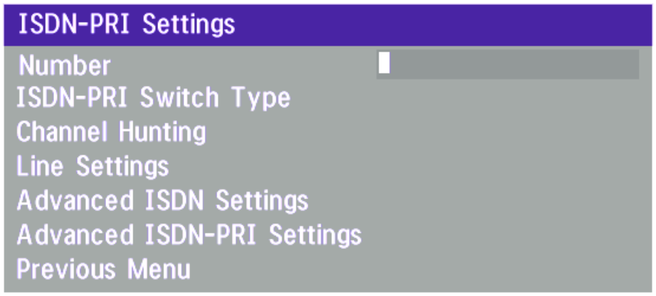


Connecting to Adtran T1 ESF CSU ACE

Connect the PRI cable from the Codec to the input marked CPE on the Adtran CSU (straight through category 5 cable is recommended). Connect to the network via the NET connector on the Adtran CSU. When two Codecs are cascaded, connect the second Codec to the E1/T1 port 2 on the first Codec using a T1 crossover cable.

Configuration of the system

Press MENU on the remote control. Select '**Terminal Settings**', '**Network**'.
Select '**Current Network: PRI**' and specify your PRI number, max. channels, cable length (between Codec and CSU) and switch type:



NOTE: Cascaded connection: Remember to program numbers and MSN. Otherwise, the first codec will answer all calls.

Configuration of Adtran T1 ESF CSU ACE

Enter '2)CONFIG' menu using SCROLL and ENTER buttons.

- Enter '3)TERMINAL' menu. Check '1)FORMAT:ESF', '2)CODE: B8ZS' , '3)SET LBO: 0-133' (Corresponding to 'Cable Length' setting on the Codec.

- Go to main menu and enter '1)NETWORK' menu. '7)SET LBO: 0.0 (According to information from Telco).

- Also, other network parameters should be set according to information from your Telco.

Appendix 4

Environmental considerations

This section explains how to carry out basic adjustments and simple tests to ensure that you send and receive the best possible image and audio quality when using your system.

Iris control and lighting

By default the system camera will use an automatic iris to compensate for changes in lighting. In addition to this feature you may further assist the system to maintain the best possible image quality by paying special attention to environmental lighting and background colors as described below. Remember the system will send live images of yourself *and* your immediate surroundings.

- Avoid direct sunlight on the subject matter i.e. yourself, the background or onto the camera lens as this will create harsh contrasts.
- If light levels are too low you may need to consider using artificial lighting. As described above, direct illumination of the subject matter and camera lens should be avoided.
- When using artificial lighting, ‘daylight’ type lamps will produce the most effective results. Avoid colored lighting.
- Indirect light from shaded sources or reflected light from pale walls, often produces excellent results.
- Avoid harsh side lighting or strong light from above. Strong sunlight from a window or skylight may put part or all of the subject matter in shadow or cause silhouetting.
- If you still have problems with the iris and lighting, manual adjustment of the camera parameters might help - see ’**Video Settings**’ menu.
- Dim scenes can also be improved by manually adjusting the camera brightness setting.

Background

The appearance of the picture background is very important but easily overlooked. It is important to remember that the camera also shows what is behind you when in a videoconference. To ensure a suitable background we recommend you consider the following:

- Use a neutrally colored background with a medium contrast and a soft texture, e.g. a plain curtain with no heavy patterns or strong colors that may adversely tint the whole scene.
- Avoid moving backgrounds such as curtains blowing in a draught, moving objects, or people walking behind as this may both reduce image quality and distract the attention of the calling party.
- Do not place the camera facing a doorway.

Loudspeaker volume

The audio system will use the Natural Audio module. The volume of the audio system is controlled by the Volume Control keys on the system remote control.

The default volume level can be set by adjusting the volume on the TV monitor using the TV monitor’s own remote control.

Appendix 5

Using the file system

It is possible to access a file system within the TANDBERG system by using ftp:
DOS-window: ftp <IP-address of codec>, or
Web-browser: ftp:// <IP-address of codec>

Description of the different files
all.prm - all settings in the system (including directory)
dir.prm - directory entries
event.log - logs fault sitations etc.
sw.pkg - the system software

Description of the different folders
user - a folder to be used for custom logos etc.
remote - a folder used for software upgrade of the far end TANDBERG system

What can be done by using the file system?
· software upgrade of the far end TANDBERG system (B3 or above) via ISDN
· upload of custom logos

Software upgrade
· Connect to the system you want to upgrade using ISDN.
· Copy the software file to a folder on your harddisk.
· Open a DOS-window and go to this folder.
· Type ftp <IP-address of your local codec).
· Enter password: <Release Key of far end system>
· Go to the remote folder, type “cd remote”
· Upload the software file, type put <s0xxxxxx.pkg>
· Wait until the following is shown:

```
226 Closing data connection.
5437569 bytes sent in 808.01 seconds (6.73 Kbytes/sec)
ftp>
```

· Restart the far end codec.
The far end system should now be upgraded. For further information, please contact your TANDBERG representative.

Custom logos
· Go to the folder where your logo is located.

NOTE: Logo max size: 320x200, or max. 64000 pixels and must be in jpg-format. If the file is too large, no logo will be displayed.

· Type ftp <IP-address of your local codec).
· Go to the user folder, type “cd user”
· Upload the logo, type put <startup.jpg>
The new logo will be displayed the next time you restart your system.

Appendix 6: Access Code

The system will verify if the entered access code is valid by checking the code with the allowed codes listed in the ‘access.txt’ file on the ftp-server in the codec.

If no ‘access.txt’ file is uploaded to the codec, registration of the code will be done without validation. E.g. you can enter whatever code you want and have access to the system.

The ‘access.txt’ file is a plain text file with one line per access code as shown below:

```
1234
1250
A1
B2
ABC
```

To upload this file to the codec, follow these steps:
· Open a DOS-window and go to the folder where the ‘access.txt’ file is located.
· Type ftp <IP-address of your local codec).
· ‘User:’, press Enter or enter IP-password.
· Type “bin” and press Enter
· Go to the user folder, type “cd user”.
· Upload the ‘access.txt’ file, type ‘put access.txt’.
· Exit from ftp, type ‘bye’.

Technical Description

Function/Purpose: The Tandberg Health Care System HCS III and HCS III Mobile are specially designed for use in a health care environment to provide:

- Continuing Medical Education
- Consultation and clinical diagnosis
- Research and development
- Administrative videoconferencing

Power	120/240 VAC, 50/60 Hz, 1000 VA max
Class	I
Operating Temperature	10 – 20 degrees C (50 – 77 degrees F) Ambient
Humidity	10% to 50% Relative humidity
Storage and Transport	10 – 40 degrees C (50 – 104 degrees F) at 10 – 60% Relative Humidity
Type	Non-classified
Approvals	UL 2601-1-1, CSA 601.1.1, EN 60 601-1-1, FCC-A, CE (MDD)
Monitor	20” Medical grade color monitor, NTSC or PAL

W.A.V.E. (Wide Angle View) camera	12 x zoom 1/3” CCD +5°/-15° tilt +/- 95° pan 76° vertical field of view 270° horizontal field of view 450 (PAL) / 460 (NTSC) horizontal TV lines Min. illumination 7 Lux (F1.8) Auto or manual focus, brightness and white balance Far end camera control 15 near and far-end camera pre-sets
LCD Display Monitor (Dual Monitor)	15” LCD flat panel display supports 16 million colours in VGA, SVGA, XGA pixel formats PC and Macintosh compatable Anti-glare hard coat glass surface Triple-povot mounting arm for easy viewing See LCD User Manual for more specifications
Mobile Camera Cart	WAVE Camera ‘I.V.’ stand design adjustable to 6.5’ Universal scope holder Triple-pivot arm for camera Optional 2nd uni-directional ‘shotgun’ microphone Height adjustable camera arm

Bandwidth
H.320 up to 2Mbps
H.323 up to 3Mbps

Video Standards
H. 261, H.263, H.263+, H.263++ (Natural Video^{TF})

Video Features
Picture in Picture (PIP)
Intelligent Video Management^{TF}

Video Inputs
2 x S-Video, mini-DIN connector
(Main camera uses S-Video Input #1)
(Mobile cart uses S-Video Input #2)
2 x Composite video inputs, RCA Connectors
(Mobile Cart uses RCA Input #3)
(Input #4 is designated as VCR IN on Interface panel)
VGA In, 15-Pin high density D-SUB

Video Outputs
(System monitor uses S-Video Output #1)
(S-Video Output #2 designated as Dual Out on interface panel or used for Zenith LCD)
2 x Composite video outputs, BNC connectors
(Composite Output #3 is designated as VCR Out on interface panel)
(Composite Output #4 is designated as Dual Out on interface panel)

Video Format
NTSC or PAL

Live Video Resolution
Native NTSC:
4SIF (704 x 480 pixels), Digital Clarity^{TF}
Interlaced SIF^{TF} (352 x 480 pixels), Natural Video^{TF}
SIF (352 x 240 pixels)
Native PAL:
4CIF (704 x 576 pixels), Digital Clarity^{TF}
Interlaced CIF^{TF} (352 x 576 pixels), Natural Video^{TF}
CIF (352 x 288 pixels)
QCIF (176 x 144 pixels)
SQCIF (128 x 96 pixels)
Native PC Resolutions:
SVGA (800 x 600 pixels)
VGA (640 x 480 pixels)

Still Image Transfer
CIF, 4CIF, H.261 Annex D

Audio Standards
G.711, G.722, G.722.1, G.728

Audio Features
Telephone add-on via MultiSite^{TF}
TANDBERG Natural Audio Module™
Four separate acoustic echo cancellers
Audio mixer
Automatic gain control
Automatic noise reductions
Audio level meters
VCR ducking

Audio Inputs
3 x Microphone, 24V phantom powered, XLR Connector
(Mic #1 is designated for System Microphone)
(Mic #2 is designated for Mobile Cart)
(Mic #3 is designated as Mic 3 on interface panel)
3 x Line Level Inputs, RCA Connectors
(Line IN #5 designated as PC Audio Feed)
(Line IN #6 designated as VCR Audio IN on interface panel)

Audio Outputs
3 x Line Level Outputs, RCA Connectors
(Line Out #1 designated as speaker output, dual audio out on interface panel, and headset output)
(Line Out #3 designated as VCR Audio OUT on interface panel)

XGA Input/SVGA Output
Input: 640 x 480 – 1024 x 768
56-85 Hz. auto-detection. (VGA Input is wired to PC shelf)
Output: 640 x 480 – 800 x 600, 60 Hz
(VGA Output is designated for flat panel LCD)

Frame Rates
15 frames per second @ 56 - 128kbps
30 frames per second @ 168kbps -3 Mbps
60 fields per second @ 448kbps - 3 Mbps (Natural Video^{TF})

MultiSite™ Features
Any combination of IP & ISDN connections (transcoding)
ISDN & IP Downspeeding™ at call set-up
Dial in / Dial out capabilities
Continuous Presence or Voice Switched
5 sites including min. 1 telephone call
Built-in MultiSite™ audio bridge for up to 5 sites
Duo Video™, Digital Clarity™, Natural Video™
MultiSite™ over IP
4 sites @ 64-768kbps + 1 telephone call over ISDN
3 sites @ 64-1Mbps + 2 telephone calls over ISDN
Point-to point @ 3Mbps + 3 telephone calls via ISDN
MultiSite™ over ISDN PRI / E1(T1)
4 sites @ 56 - 512 (384)kbps + 1 telephone call via ISDN
3 sites @ 56 - 768 (512)kbps + 2 telephone calls via ISDN
Point-to point @ 56 - 1.5 (1)Mbps + 3 telephone calls via ISDN
MultiSite™ over ISDN / 6BRI
4 sites @ 256kbps or 3 sites @ 384kbps
4 sites @ 56 - 192kbps + 1 telephone call via ISDN
3 sites @ 56 - 256kbps + 2 telephone calls via ISDN
Point-to-point @ 56 - 512 kbps + 3 telephone calls via ISDN
MultiSite™ (H.243) Cascading
Up to 10 video sites @ 768kbps + 4 audio sites
Any combination of IP & ISDN connections (transcoding)

DuoVideo™
Available on all networks
Available in MultiSite™ (over IP & ISDN)

Network Features
Auto H.320/H.323 Dialling
Downspeeding™
Programmable network profiles
Password protection
Intelligent Call Management™
H_o on ISDN-PRI facility
NATO standard KG194 encryptor support
Automatic SPID and Line Number Configuration (National ISDN, GR-2941-CORE)
Soft*Mux*™
H.331 Broadcast Mode

H.323 Network Features
IP precedence (QoS)
IP type of service (TOS)
Network Address Translation (NAT) support
IP adaptive bandwidth management (including flow control)
Auto gatekeeper discovery
Dynamic playout and lypsync buffering

Network Interfaces
6 x ISDN BRI (RJ-45), S-interface
1 x E1/T1 G.703 (RJ-45) for ISDN PRI or Leased E1/T1
1 x E1/T1 (RJ-45) for ISDN PRI cascading
1 x LAN / Ethernet (RJ-45) 10/100 Mbit (LAN/DSL/Cable Modem)
1 x X.21 / V.35 / RS-449 with RS-366 dialling,Leased Line or data triggered mode

Ethernet/Inernet/Intranet Connectivity
TCP/IP, SNMP, DHCP, ARP, FTP, Telnet, HTTP,
SNMP Enterprise Management
Internal web server
Internal streaming server
Support for the TANDBERG Management Suite
10/100Mbit full/half duplex (manual or auto detect selection)

Other Supported ITU Standards
H.320, H.323, H.281, BONDING (ISO 13871), H.231, H.243, H.331

Presentations and Collaboration
Natural Presenter Package including:
PC Presenter™
PC SoftPresenter™
Digital Clarity™
Duo Video™

T.120 Microsoft NetMeeting support via RS-232 (9-pin D-sub)
Streaming (compatible with Apple QuickTime and RealPlayer v8 etc.)

System Management
Total management via embedded web browser, SNMP, Telnet and FTP
Remote software upload: during a call over all networks, via webserver, and via FTP server
1 x RS-232 used for main camera control
1 x RS-232 for local software upgrades, local control and diagnostics
Remote control and menu system

Directory Services
200 number global directory
100 number local directory including:
16 dedicated MultiSite™ entries

9 selectable menu languages:
English, French, German, Italian, Japanese, Norwegian, Portuguese, Spanish and Swedish

Customised boot up logo (jpeg)

Abbreviations

AGC	Auto Gain Control
ARP	Address Request Protocol
Aux	Auxiliary
BNC	Bayonet Connector
BRI	Basic Rate Interface
CCD	Charge Couple Device
CD	Collision Detection
CE	Communitee European
CIF	Common Intermediate Format
Codec	Coder/Decoder
CPE	Customer Premise Equipment
CRC	Cyclic Redundancy Checking
CSA	Canadian Standards Association
CSU	Channel Service Unit
CTS	Clear To Send
DHCP	Dynamic Host Configuration Protocol
DSU	Data Service Unit
DTR	Data Transfer Rate
DTX	Discontinuous Transmission
DVD	Digital Versatile Disc
ESF	Extended Super Frame
FECC	Far End Camera Control
FTP	File Transfer Protocol
HCS III	Health Care System III
ICIF	Interlace Common Intermediate Format
ICM	Intelligent Call Management
IEC	International Electrotechnical Commission
IMUX	Inverse Multiplexer
IR	Infrared Radiation
ISDN	Integrated Services Digital Network
ISIF	Interlace Source Input Format
LAN	Local Area Network
LCD	Liquid Crystal Display
MCU	Multi-point Control Unit
Mic	Microphone
MSN	Multiple Subscriber Number
NAT	Network Address Translator
NR	Noise Reduction
NSF	Non Standard Facility
NT	Network Terminator
NTSC	National Television Systems Committee
PABX	Private Automatic Branch Exchange
PAL	Phase Alternation Line
PBX	Private Branch Exchange
PC	Personal Computer
PIP	Picture-In-Picture
PRI	Primary Rate Interface
QCIF	Quarter Common Intermediate Format
QoS	Quality of Service
RTS	Ready To Send
SIF	Source Input Format
SNMP	Simple Network Management Protocol
SPID	Service Provider IDentification
SQCIF	Sub-Quarter Common Intermediate Format
SVGA	Super Video Graphics Array
TCP/IP	Transmission Control Protocol/Internet Protocol
TCS	Terminal Control String
TOS	Type Of Service
TTL	Time To Live
UL	Underwriters Laboratories
VCR	Video Cassette Recorder
VGA	Video Graphics Array
VISCA	Video System Control Architecture
VNC	Virtual Network Computing
WAN	Wide Area Network
WAVE	Wide Angle View
XGA	Extended Graphics Array

Index

Symbols

1TR6 19

A

Abbreviations 103
Access Code 35
Add Duo Video 46
Add MultiSite Entry 40
Add New Entry 39
Adding an extra site 50, 51
Advanced call quality 57
Advanced ISDN settings 75
Advanced use 55
Alert Speaker 69
Audio
 inputs 64
 outputs 65, 66
 quality 56
 setup 64
 sources 64
Auto BRI Config 73
Autofocus 42
Automatic Gain Control 67
Auxiliary 1 22
Auxiliary 2 23

B

Background 28, 97
Battery handling 3
Block Diagram 20

C

Cable Specification, V.35 80
Call
 making a LAN call 35
 making a video call 35
 restricted 36
Call control 80
Call Quality menu 56
Call Settings 86
Call status 91
Camera 14
 controlling 42
 tracking modes 69
Camera Arm Clamp 17
Cause codes 91
Chairman functionality 61
Channel status 90
CIF 57
Cleaning 6
Closed Captioning 53
Continuous Presence 61
Control mode 88
Copyright 3
Correcting keying mistakes 37

D

Data mode 88
Dataport configuration 88
DHCP 84
Diagnostics 90
Dial in to MultiSite 51
Dialing 35
Digital Clarity 58
Directory
 Add New Entry 39
 Edit Entry 39
 Name 39, 40
Disconnect site # 63
Disconnecting sites 51
Do not disturb 41
Document Camera 69
Downspeeding 35, 75
Dual Monitor 45
Duo Video 46
Duo Video / Still Image source 58
Duo Video Quality 58

E

Edit/Delete Entry 39
Encryption 87
Ending a call 37
Ethernet Speed 85
Euro ISDN cause codes 91
External mixer 64
External network settings 79

F

Far end camera control 44, 59
FECC 44
Floor to site # 63
Focus 69

G

G.711 57
G.722 57
G.722.1 57
G.728 57
Gateway 85
Getting Started 30
Graphics
 Receiving 45
 Sending 45
Guidelines for making rooms 28

H

H.261 57
H.263 57
H.281 44
H.331 57
Headset 16
HumFilter 66

I

iCIF 57
Incoming MCU calls 86
Installation 5, 19
Introduction 12
IP Precedence 83
IP-address 84
IP-subnet mask 84
Iris Control and Lighting 28
Iris control and lighting 97
ISDN switch type 73
ISDN-BRI Settings 73
ISDN-PRI/T1 Settings 76

J

Jack 16

L

LCD Display 14
Leased E1/T1 79
Level Settings
 Outputs 66
Lighting 29
Line setup 74
Loudspeaker Volume 28
Loudspeaker volume 97

M

Main Camera 14
Making a call 35
MCU services 61
Menu structure 32
Menu system 55
Microphone 14
 levels 65
 on/off 41
Mobility 6
Modem mode 88
Monitor 14
Motion 56
Moving camera 42
MSN (Multi Subscriber Number) 75
Multipoint Control Unit (MCU) 61
MultiSite (Built-in) 48

N

NAT 84
NAT Address 84
Natural Video 12, 56, 57
Network configuration 72
Network Profiles 87
NT1 93
NT384 93

O

Operational Considerations 28

P

Parallel dial 75
PC 14, 69
PC Presenter 52
PC SoftPresenter 52
Phantom power 64
Picture-in-Picture 41
PIP 41
Precautions 5, 19
Presentation Settings 61
Presentations 58
Preset buttons 44
Presets
    selecting 44
    storing 44
Production of products 3

Q

Quality 36
Quick keys 31

R

Release chair 63
Release floor 62
Repacking 6
Request floor 62
Requesting a still image 45
Restart 85
Restore Audio Defaults 69
Restore defaults 91
Restrict 94, 95
Restricted call 36

S

Safety 5
Seating Area 29
Selecting nettwork 37
Selecting network 37
Selecting video sources 42
Send Own Numbers 79
Sharpness 56
SNMP Agent 85
SNMP Community 85
SNMP Manager 85
SNMP Trap Host 85
SNMP traps 85
SoftMux 35
Software Options 89
Start-up 30
Status Format 57
Still Image
    Set-up 61
Still image
    filter 59
    receiving 45
    requesting 45
    sending 45
    viewing 45
Storage 6
Storing presets 44
sub-address 35
Subaddress 75
System configuration 33
System Info 41
System info 90
System Power-up 30
System set-up 72

T

T.120 88
Take chair 63
Terminal ID 62
Terminal settings 72
Terminate meeting 63
Text Chat 53
To adjust the volume 41
To answer a call 37
To call a terminal with a SUB-address 75
To connect a PC to Dataport 1 88
To end a call 37
To enter/leave the menu system 55
To manually focus the Main Camera 42
To select a preset 44
To store the current camera position 44
TOS 83
Trademarks 3
Type of Service 83

U

Unpacking 19
Utilities 59

V

VCR 22
VGA Resolutions 56
VGA Settings 70
Video
    input 69
    inputs 42
    mode 57
    sources 42
Video call 35
Video In Name 70
View
    current settings 92
    outgoing video 41
Viewing a still image 45
VNC 69, 71
VNC Settings 71
Voice Activated Camera Positioning 43
Voice Switched 61
Volume 41

W

Waste handling 3
WAVE camera 14, 17
Whitebalance 69

X

X.21 19

Servicing

Do not attempt to service the apparatus yourself, otherwise the warranty will be voided. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service

Unplug the apparatus from the outlet and refer servicing to qualified personnel under the following conditions:
When the power cord or plug is damaged or frayed.
If liquid has been spilled or an object has fallen into the apparatus.
If the apparatus has been exposed to rain or moisture.
If the apparatus has been subject to excessive shock by being dropped.
If the apparatus does not operate normally when following the operating instructions.

For servicing, please call one of the following service centres:

USA

Tandberg Inc.
1860 Michael Faraday Drive
Suite 250
Reston, Virginia 20190
Tel: 703 709 4281
Fax: 703 709 4231
Video: 703 437 6991

Canada

Tandberg
6505 Trans-Canada Hwy
Suite 610
St. Laurent, Quebec
H4T 1NS3
Tel: 514 748 5224
Fax: 514 748 5229
Video: 514 744 4792

Europe & Asia Pacific

Tandberg
Philip Pedersens vei 22
1366 Lysaker, Norway
Tel: +47 67 125 125
Fax: +47 67 125 234
Video: +47 67 117 777

Mailing Address:
Tandberg ASA
P.O. Box 92
1325 Lysaker, Norway